V3403

1987 FORD TAURUS INTO THE LEFT SIDE OF A 1987 FORD F150 PICKUP TRUCK

TRC TEST NO. 930212

PREPARED BY:

TRANSPORTATION RESEARCH CENTER INC.

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EAST LIBERTY, OHIO 43319

FEBRUARY - MARCH 1993

FINAL REPORT

PREPARED FOR:

VEHICLE RESEARCH AND TEST CENTER

P. O. BOX 37

EAST LIBERTY, OH 43319

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16. Abstract

A 45 mph 300° driver's side vehicle to vehicle impact test was conducted at Transportation Research Center Inc. on February 12, 1993. The striking vehicle was a 1987 Ford Taurus and the struck vehicle was a 1987 Ford F150 pickup truck. This test was conducted to determine the fuel tank integrity and occupant response of the struck vehicle in the 300°, 45 mph driver side impact mode. The striking vehicle's impact velocity was 45.4 mph. The struck vehicle's maximum crush was 28.8 inches and fuel leakage was observed from the reservoir located on the left frame rail. The ambient temperature was 43° F.

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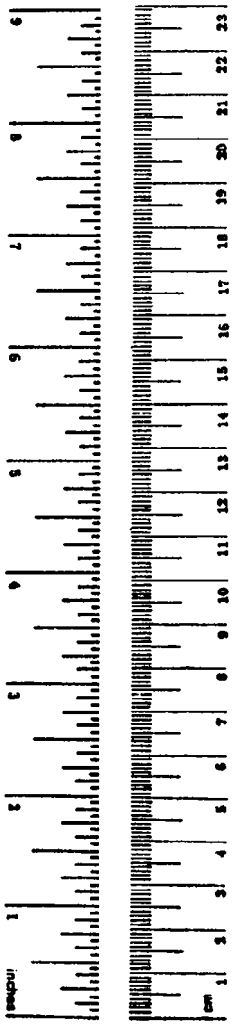
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

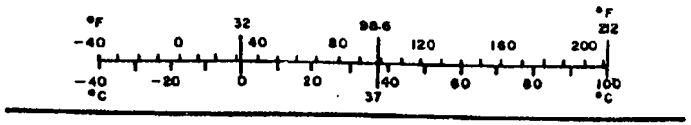
Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures. Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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SECTION 1.0

PURPOSE & TEST PROCEDURE

PURPOSE

This 45 mph 300° driver's side impact test was conducted for Vehicle Research and Test Center by Transportation Research Center Inc. (TRC). The purpose of this test was to determine the struck vehicle's occupant response and fuel tank integrity in the 45 mph 300° driver's side impact mode.

TEST PROCEDURE

This test measured the occupant response and fuel tank integrity of a 1987 Ford F150 pickup truck being struck by a 1987 Ford Taurus in the 45 mph 300° driver's side impact mode.

The Ford F150 pickup truck was instrumented with six (6) accelerometers to measure lateral axis accelerations. The truck was placed at a 60° angle to the tow cable system prior to impact. The leading edge of contact was 27.4 inches forward of the midpoint of the truck's wheelbase.

The truck contained one (1) Part 572 F side impact adult male anthropomorphic test device (dummy). The dummy was positioned in the left front outboard designated seating position using the dummy placement procedure specified as an attachment to the FMVSS 214 Laboratory Test Procedure as a guideline. The dummy was instrumented with spine and rib accelerometers to measure lateral accelerations. Head and pelvis accelerometers were used to measure longitudinal, lateral, and vertical axis accelerations. The dummy was restrained with a three-point belt.

The Ford Taurus was instrumented with four (4) accelerometers to measure longitudinal and lateral axis accelerations. The Taurus's specified velocity range was 44.5 to 45.5 mph.

The twenty-eight (28) data channels were multiplexed and recorded on a 14-track tape drive. The data was digitally sampled at 8000 samples per second and processed per section 12 of the FMVSS 214 Laboratory Test Procedure.

The crash event was recorded by one (1) real-time panning motion picture camera and nine (9) high-speed motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.

The vehicle and occupant data are summarized in Section 2.0. The struck vehicle data are presented in Section 3.0. The striking vehicle data are presented in Section 4.0. The occupant and camera measurements are presented in Section 5.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy calibration data. Appendix D contains miscellaneous test information.

SECTION 2.0

TEST SUMMARY

TEST RESULTS SUMMARY

This 45 mph 300° driver's side impact test was conducted on a 1987 Ford F150 pickup truck at TRC on February 12, 1993.

The truck was equipped with a 4.9 liter, inline engine, automatic transmission, power steering, and power brakes. The truck's test weight was 4518 pounds. The Taurus's impact speed was 45.4 mph. The truck sustained a maximum static crush of 28.8 inches and the car sustained a maximum static crush of 3.5 inches.

The driver's Thoracic Trauma Index (TTI) calculation and Head Injury Criteria (HIC) were 33.9 and 460 respectively; maximum pelvis lateral acceleration was 48.0 g.

The door on the struck side of the truck did not separate from the vehicle's main body at the hinges or latch. The door on the opposite side did not open during the crash event.

Fuel leakage was observed from the reservoir located on the left frame rail.

TABLE 1 CRASH TEST SUMMARY

TEST TYPE: Left Side Impact

TEST DATE: 02/12/93

TEST TIME: 1451

AMBIENT TEMPERATURE AT IMPACT AREA (°F): 43

TEMPERATURE IN OCCUPANT COMPARTMENT (°F): 73

STRUCK VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1987/Ford/F150/pickup truck

STRIKING VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1987/Ford/Taurus/4-door sedan

STRUCK VEHICLE TEST WEIGHT (LBS): 4518

STRIKING VEHICLE TEST WEIGHT (LBS): 3070

IMPACT POINT (IN)*: 27.4

IMPACT ANGLE (DEG)**: 300

IMPACT VELOCITY (MPH)***: PRIMARY = 45.4 SECONDARY = 45.3

STRUCK VEHICLE MAXIMUM STATIC CRUSH (IN): 28.8

STRIKING VEHICLE MAXIMUM STATIC CRUSH (IN): 3.5

DUMMIES:	Driver #903
TYPE:	Part 572 F
LOCATION:	Left front (struck vehicle)
RESTRAINT:	3-point unibelt
NUMBER OF DATA CHANNELS:	28
NUMBER OF CAMERAS:	HIGH-SPEED 9 REAL-TIME 2

*The point where the leftmost edge of the Ford Taurus's bumper meets the edge of the truck as measured forward of the truck's wheelbase midpoint.
**Measured clockwise from struck vehicle's front longitudinal centerline.
***Speed trap measurement (± .05 mph accuracy)

SECTION 3.0

STRUCK VEHICLE INFORMATION AND MEASUREMENTS

TABLE 2 STRUCK VEHICLE INFORMATION

VEHICLE MANUFACTURER: Ford Motor Company

MAKE/MODEL: Ford/F150 VIN: 1FTCF15Y5HLA13787

BODY STYLE: pickup truck MODEL YEAR: 1987

COLOR: Black

ENGINE DATA: TYPE: Inline CYLINDERS: 6 DISPLACEMENT: 4.9 liter

TRANSMISSION DATA: 3 SPEED, ___ MANUAL, X AUTOMATIC, ___ FWD, X RWD, ___ 4WD

DATE VEHICLE RECEIVED: 03/09/93 ODOMETER READING: 75,458

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	Yes
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	No
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	Yes
RADIO	Yes	ANTI-SKID BRAKE	No
CLOCK	Yes	REAR WINDOW DEFROSTER	No
OTHER	None		

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY: Ford Motor Company

DATE OF MANUFACTURE: 12/86 VIN: 1FTCF15Y5HLA13787

GVWR: 4900 LBS

GAWR: FRONT: 2650 LBS., REAR: 2887 LBS.

TABLE 2 STRUCK VEHICLE INFORMATION, CONT'D.

TIRES ON VEHICLE (MFR., LINE, SIZE):
FRONT: Sentry, Deluxe Classic LX, P235/75R15
REAR: Firestone, Radial ATX, P235/75R15

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 35 PSI
REAR: 35 PSI

SPARE TIRE (MFR., LINE, SIZE): None

TYPE OF SEATS: FRONT: Bench
REAR: None

TYPE OF FRONT SEAT BACKS: Not adjustable

MAXIMUM WIDTH: 78.2 INCHES

WHEELBASE: 133.0 INCHES

TEST FLUID DATA:

MEASURED FUEL TANK CAPACITY: 22.3 GAL.

TANK TEST VOLUME: 20.7 GAL.

TEST FLUID TYPE: PURPLE STODDARD SOLVENT #2

SPECIFIC GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES.

LOCATION OF LABEL STATING TIRE & CAPACITY DATA:
The label was located on the driver's side B-pillar.

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL:

RECOMMENDED TIRE SIZE: P215/75R15

RECOMMENDED COLD TIRE PRESSURE: FRONT: 35 PSI; REAR: 35 PSI

DESIGNATED SEATING CAPACITY: NA FRONT NA REAR NA TOTAL

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN INCHES):

DELIVERED ATTITUDE:	LF	31.8;	RF	31.3;	LR	35.1;	RR 34.8
PRE-TEST ATTITUDE:	LF	31.6;	RF	30.9;	LR	33.6;	RR 33.1
POST-TEST ATTITUDE:	LF	36.2;	RF	31.5;	LR	39.1;	RR 33.6

TABLE 2 STRUCK TEST VEHICLE INFORMATION, CONT'D.

WEIGHT OF TEST VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS):

RIGHT FRONT	1174 LBS.	RIGHT REAR	770 LBS.
LEFT FRONT	1166 LBS.	LEFT REAR	743 LBS.
TOTAL FRONT WEIGHT	2340 LBS.	(60.7% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1513 LBS.	(39.3% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	3853 LBS.		

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT *

UDW = UNLOADED DELIVERED WEIGHT (LBS) *

VCW = VEHICLE CAPACITY WEIGHT (LBS) *

DSC = DESIGNATED SEATING CAPACITY ( ) *

RCLW* = VCW - 150 (DSC) = 300

TARGET TEST WEIGHT = UDW + RCLW*+ (NO. OF PART 572 DUMMIES X 164 ** LBS/DUMMY)

TARGET TEST WEIGHT = 3853 + 300 + 328 **

TARGET TEST WEIGHT = 4481 LBS. **

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 501 LBS. OF CARGO WEIGHT:

RIGHT FRONT	1285 LBS.	RIGHT REAR	1033 LBS.
LEFT FRONT	1218 LBS.	LEFT REAR	982 LBS.
TOTAL FRONT WEIGHT	2503 LBS.	(55.4% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	2015 LBS.	(44.6% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	4518 LBS.	(0.8% OVER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE CARGO AREA: 167 LBS.

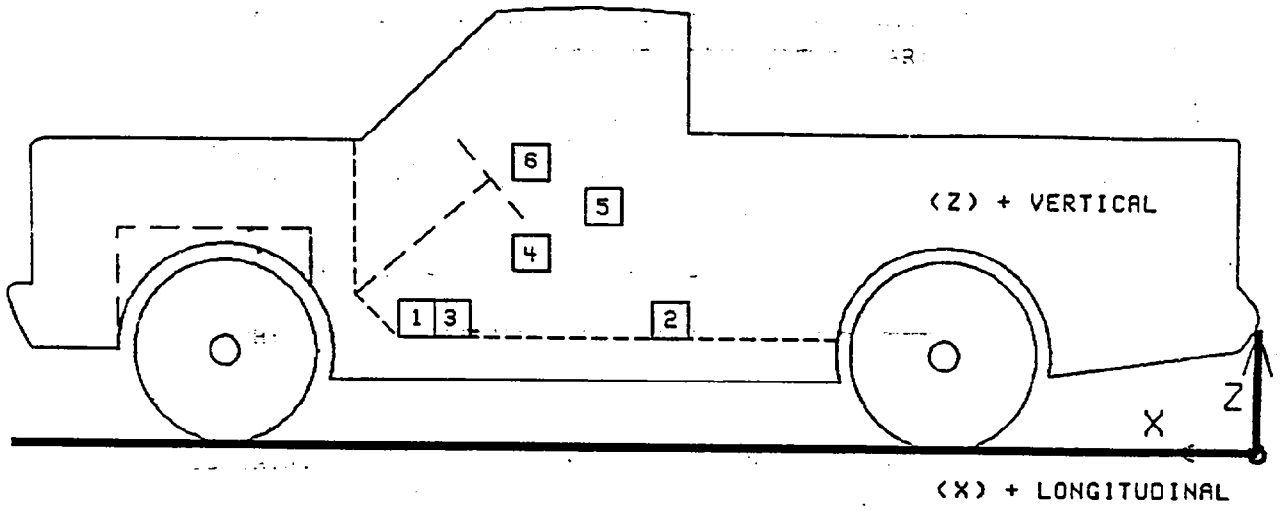
COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: None

CG = 59.3 INCHES REARWARD OF FRONT WHEEL CENTERLINE

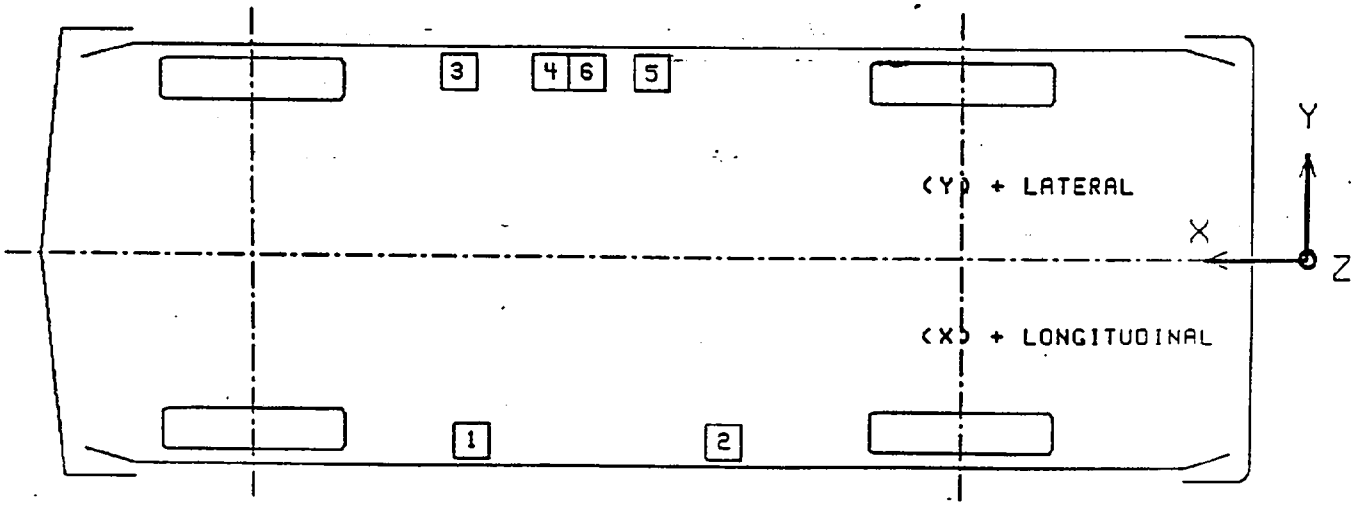
*Cargo weight for multi-purpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 300 pounds, whichever is less.

**The target test weight included two dummies to parallel Test No. 921217.

FIGURE 1 STRUCK VEHICLE INSTRUMENTATION PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 3

STRUCK VEHICLE INSTRUMENTATION LOCATIONS AND DATA SUMMARY

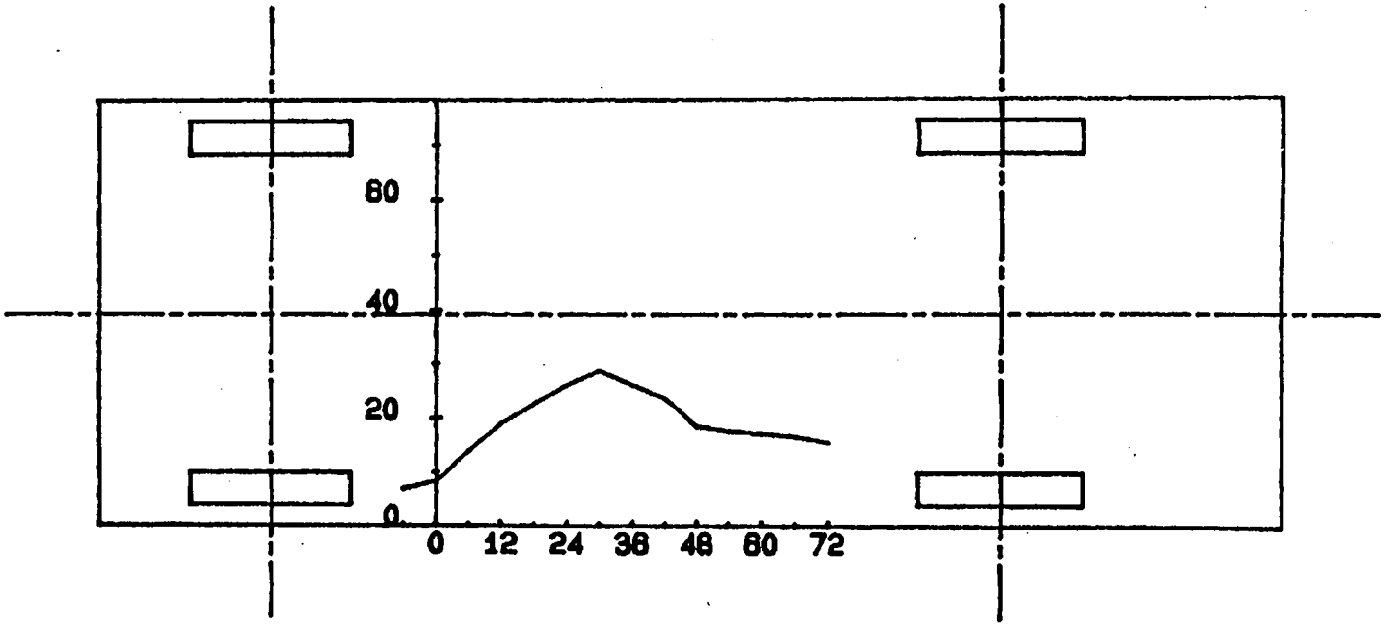
TEST NUMBER 930212

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX	POSITIVE DIRECTION MSEC	NEGATIVE DIRECTION MAX	NEGATIVE DIRECTION MSEC
1	RIGHT FRONT SILL ACCELERATION (G)	138.2	-28.8	19.1				
	LATERAL				20.2	86.8	21.8	52.1
2	RIGHT REAR SILL ACCELERATION (G)	109.0	-25.2	26.5				
	LATERAL				13.4	74.9	29.0	50.6
3	LEFT FRONT SILL ACCELERATION (G)	139.2	29.8	19.2				
	LATERAL				104.3	27.4	213.8	22.4
4	LEFT FRONT DOOR CENTERLINE ACCELERATION (G)	143.4	32.4	34.5				
	LATERAL				187.1	28.6	163.1	21.4
5	LEFT FRONT DOOR MID-REAR ACCELERATION (G)	126.2	27.8	34.5				
	LATERAL				172.5	27.4	104.6	21.3
6	LEFT FRONT DOOR UPPER CENTERLINE ACCELERATION (G)	143.4	32.4	43.5				
	LATERAL				46.5	36.8	110.4	29.1

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

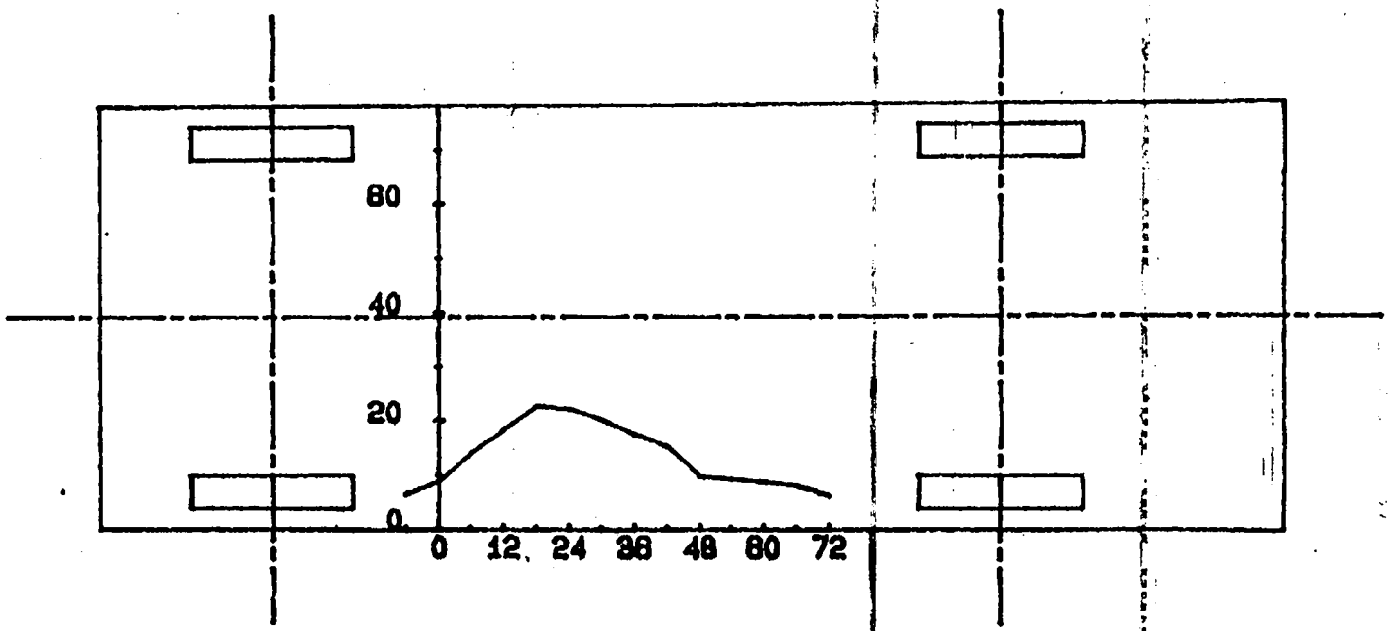
REFERENCE: X: + FORWARD FROM REAR BUMPER
Y: + LEFTWARD FROM VEHICLE CENTERLINE
Z: + UPWARD FROM GROUND LEVEL

FIGURE 2 STRUCK VEHICLE EXTERIOR STATIC CRUSH PROFILE



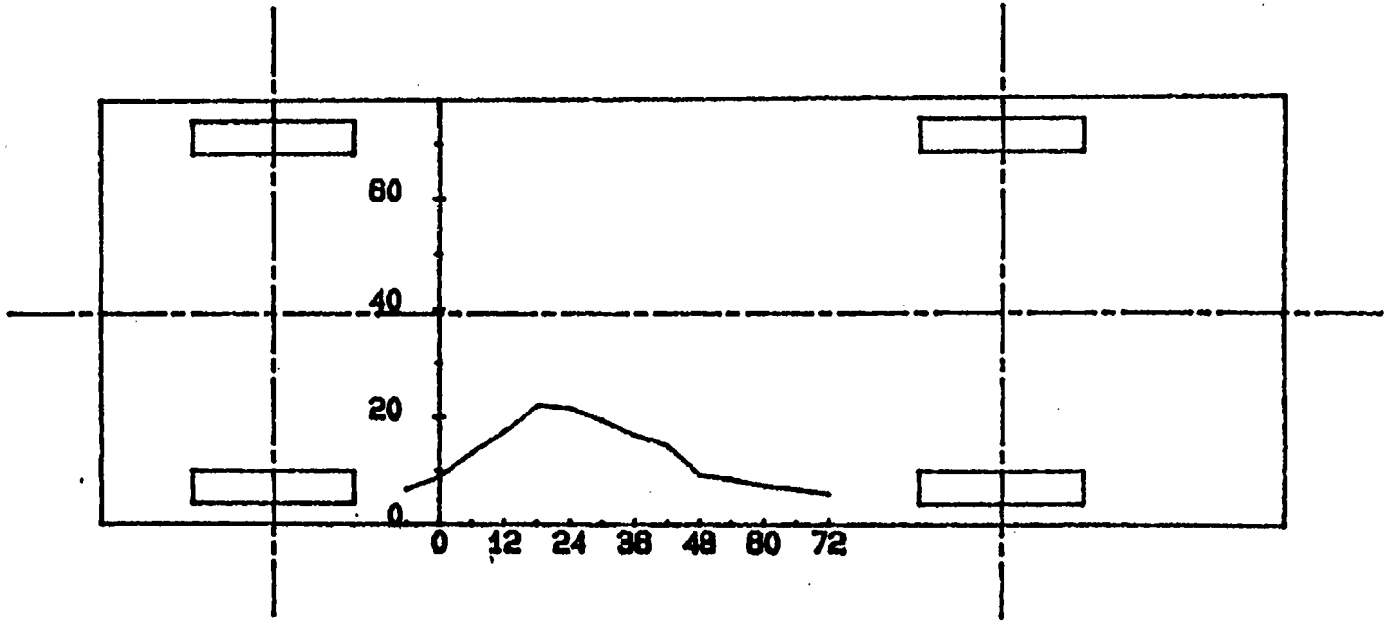
PROFILE LEVEL EQUALS AXLE HEIGHT WHICH IS 13.2 IN. ABOVE GROUND LEVEL

FIGURE 2 STRUCK VEHICLE EXTERIOR STATIC CRUSH PROFILE, CONT'D.



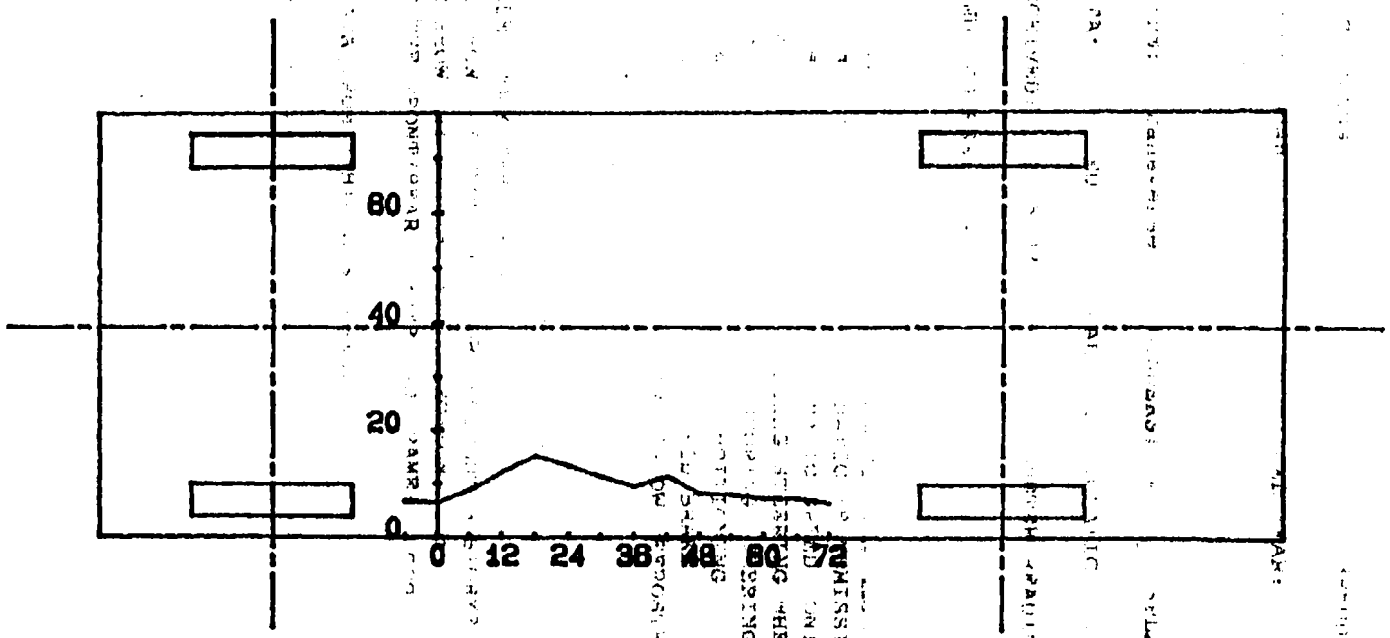
PROFILE LEVEL EQUALS H-POINT HEIGHT WHICH IS 34.2 IN. ABOVE GROUND LEVEL

FIGURE 2 STRUCK VEHICLE EXTERIOR STATIC CRUSH PROFILE, CONT'D.



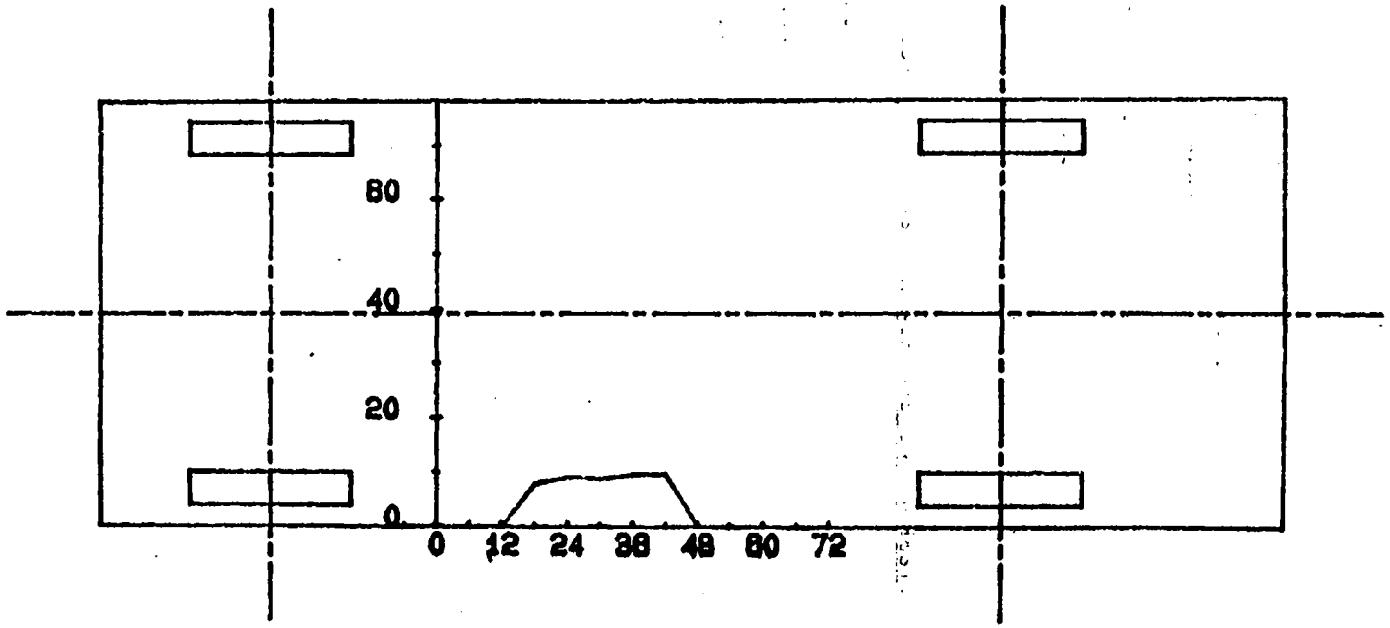
PROFILE LEVEL EQUALS MID DOOR HEIGHT WHICH IS 32.4 IN. ABOVE GROUND LEVEL

FIGURE 2 STRUCK VEHICLE EXTERIOR STATIC CRUSH PROFILE, CONT'D.



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT WHICH IS 46.0 IN. ABOVE GROUND LEVEL

FIGURE 2 STRUCK VEHICLE EXTERIOR STATIC CRUSH PROFILE, CONT'D.



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT WHICH IS 68.2 IN. ABOVE GROUND LEVEL

TABLE 4 VEHICLE EXTERIOR PROFILES AND STATIC CRUSH
ZERO DISTANCE 36.2 INCHES FORWARD OF WHEELBASE MID-POINT

LOCATION	HEIGHT(IN)	-6	0	6	12	18	24	30	36	42	48	54	60	66	72
PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE*)															
Axle Height	13.2	11.4	11.4	11.6	11.2	11.4	11.4	11.4	11.5	11.4	11.5	11.4	11.4	11.5	11.5
H-point	34.2	9.5	10.1	10.0	9.8	9.6	9.4	9.9	9.8	10.0	10.0	9.6	9.8	9.6	10.0
Mid Door	32.4	9.6	10.0	9.9	9.8	9.6	9.4	9.9	9.6	10.0	10.0	9.6	9.8	9.8	9.9
Window Sill	46.0	11.2	11.3	11.4	11.9	11.4	11.1	11.4	11.5	11.5	11.8	11.5	11.8	11.5	11.5
Window Top	68.2	X	X	X	X	20.2	19.8	20.1	19.5	19.8	X	X	X	X	X
POST-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE*)															
Axle Height	13.2	18.2	19.8	25.5	30.0	34.0	37.5	40.2	37.5	35.0	29.8	28.9	28.5	28.0	26.8
H-point	34.2	16.0	19.0	24.0	28.0	32.2	31.4	30.0	27.2	25.2	19.7	18.8	18.5	17.6	16.1
Mid Door	32.4	16.0	18.8	23.2	27.0	31.6	30.9	29.2	26.2	24.6	19.1	18.0	16.9	16.2	15.6
Window Sill	46.0	17.8	17.7	20.2	24.1	26.6	24.5	22.8	21.0	23.0	20.0	19.5	19.2	18.8	18.0
Window Top	68.2	X	X	X	X	28.0	28.8	28.8	29.0	29.5	X	X	X	X	X
STATIC CRUSH (IN)															
Axle Height	13.2	6.8	8.4	13.9	18.8	22.6	26.1	28.8	26.0	23.6	18.3	17.5	17.1	16.5	15.3
H-point	34.2	6.5	8.9	14.0	18.2	22.6	22.0	20.1	17.4	15.2	9.7	9.2	8.7	8.0	6.1
Mid Door	32.4	6.4	8.8	13.3	17.2	22.0	21.5	19.3	16.6	14.6	9.1	8.4	7.1	6.4	5.7
Window Sill	46.0	6.6	6.4	8.8	12.2	15.2	13.4	11.4	9.5	11.5	8.2	8.0	7.4	7.3	6.5
Window Top	68.2	X	X	X	X	7.8	9.0	8.7	9.5	9.7	X	X	X	X	X

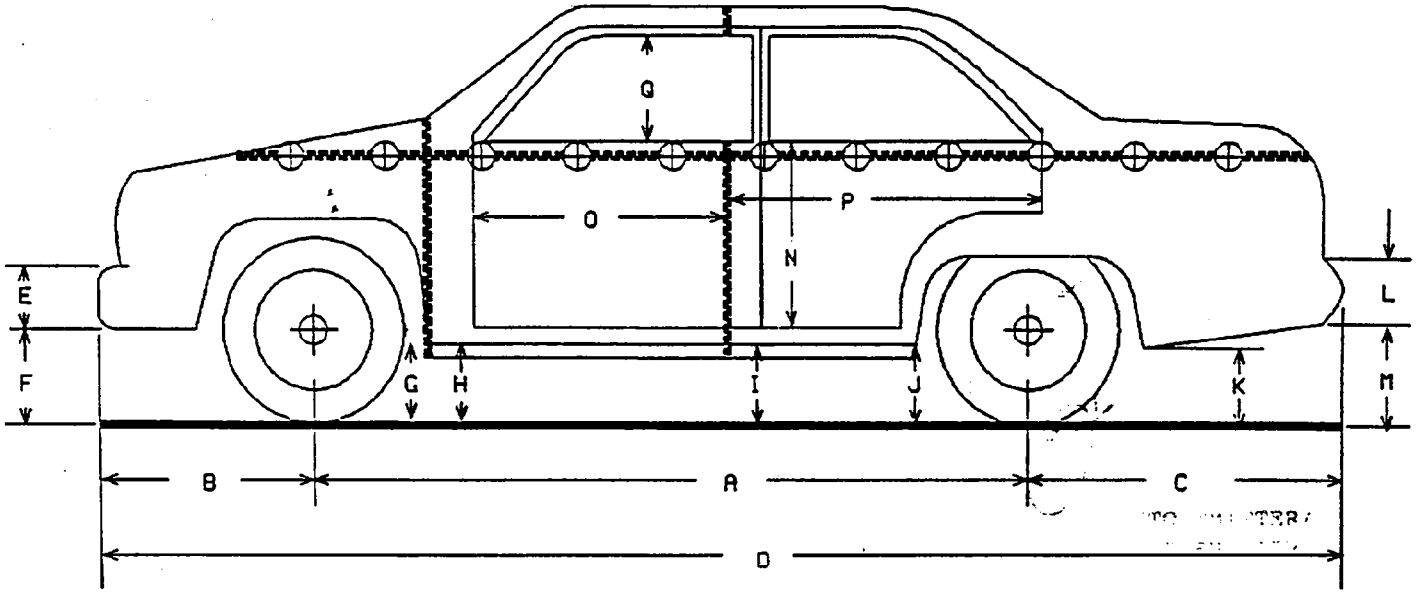
*Reference plane is parallel to and 48 inches from the vehicle's longitudinal centerline.

Crush readings are front to rear from left to right.

FIGURE 3 STRUCK VEHICLE PRE-TEST & POST-TEST MEASUREMENTS

VEHICLE YEAR/MAKE/MODEL/BODY 1987/Ford/F150/pickup truck

TEST DATE: 02/12/93 VIN: 1FTCF15Y5HLA13787



LEFT SIDE VIEW

	PRE-TEST	POST-TEST	CHANGE		PRE-TEST	POST-TEST	CHANGE
A	133.8	125.5	8.3	J	18.0	26.7	-8.7
B	31.9	32.5	-0.6	K	20.1	21.8	-1.7
C	50.4	50.4	0.0	L	7.0	7.0	0.0
D	216.1	208.4	7.6	M	18.0	18.1	-0.1
E	9.8	9.8	0.0	N	NA	NA	NA
F	16.2	14.4	1.8	O	23.5	22.8	0.7
G	13.2	13.2	0.0	P	NA	NA	NA
H	16.1	12.5	3.6	Q	18.5	17.2	1.3
I	16.9	25.3	-8.4				

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

SECTION 4.0

STRIKING VEHICLE INFORMATION AND MEASUREMENTS

TABLE 5 STRIKING VEHICLE INFORMATION

VEHICLE MANUFACTURER: Ford Motor Company

MAKE/MODEL: Ford/Taurus VIN: 1FABP50DXHG192959

BODY STYLE: 4-door sedan MODEL YEAR: 1987

COLOR: Blue

ENGINE DATA: TYPE: transverse CYLINDERS: 4 DISPLACEMENT: 2.5-liter

TRANSMISSION DATA: _3_SPEED, ___MANUAL, _X_AUTOMATIC, _X_FWD, ___RWD, ___4WD

DATE VEHICLE RECEIVED: 02/05/93 ODOMETER READING: 87,117

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	Yes	AUTOMATIC TRANSMISSION	Yes
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	Yes
POWER SEATS	No	TILTING STEERING WHEEL	Yes
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	Yes	AIR CONDITIONING	Yes
RADIO	Yes	ANTI-SKID BRAKE	Yes
CLOCK	Yes	REAR WINDOW DEFROSTER	Yes
OTHER	None		

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

CERTIFICATION DATA FROM VEHICLE'S LABEL:

VEHICLE MANUFACTURED BY: Ford Motor Company

DATE OF MANUFACTURE: 02/87 VIN: 1FABP50DXHG192959

GVWR: 4595 LBS

GAWR: FRONT: 2507 LBS., REAR: 2133 LBS.

TABLE 5 STRIKING VEHICLE INFORMATION, CONT'D.

TIRES ON VEHICLE (MFR., LINE, SIZE): Atlas, Pinnacle SE, P195/70R14

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 35 PSI
REAR: 35 PSI

SPARE TIRE (MFR., LINE, SIZE): None

TYPE OF SEATS: FRONT: Bench/split back
REAR: Bench

TYPE OF FRONT SEAT BACKS: Adjustable

MAXIMUM WIDTH: 71.2 INCHES

WHEELBASE: 105.8 INCHES

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN INCHES):

DELIVERED ATTITUDE:	LF	26.8;	RF	27.2;	LR	24.9;	RR	25.1
PRE-TEST ATTITUDE*:	LF	25.1;	RF	25.8;	LR	25.8;	RR	26.4
POST-TEST ATTITUDE:	LF	** ;	RF	22.8;	LR	26.2;	RR	27.5

*It was determined by VRTC that under heavy braking the front of the test vehicle lowered by 2.0 inches measured at the front bumper centerline and the rear of the test vehicle raised 2.2 inches measured at the rear bumper centerline. The pre-test attitudes of the test vheicle were modified to simulate these conditions.

**The front of the vehicle was wedged under pickup truck preventing the measurement of post-test attitudes.

All measurements are in inches.

TABLE 5 STRIKING VEHICLE INFORMATION, CONT'D.

WEIGHT OF TEST VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS):

RIGHT FRONT	883 LBS.	RIGHT REAR	476 LBS.
LEFT FRONT	871 LBS.	LEFT REAR	521 LBS.
TOTAL FRONT WEIGHT	1754 LBS.	(63.8% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	997 LBS.	(36.2% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT	2751 LBS.		
TARGET TEST WEIGHT =	[illegible] LBS.*		

WEIGHT OF TEST VEHICLE

RIGHT FRONT	[illegible] LBS.	RIGHT REAR	566 LBS.
LEFT FRONT	936 LBS.	LEFT REAR	[illegible] LBS.
[illegible] WEIGHT	1890 LBS.	(61.6% OF TO[illegible] VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1180 LBS.	(38.4% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	[illegible] LBS.	(0.0% OVER TARGET TEST WEIGHT)	

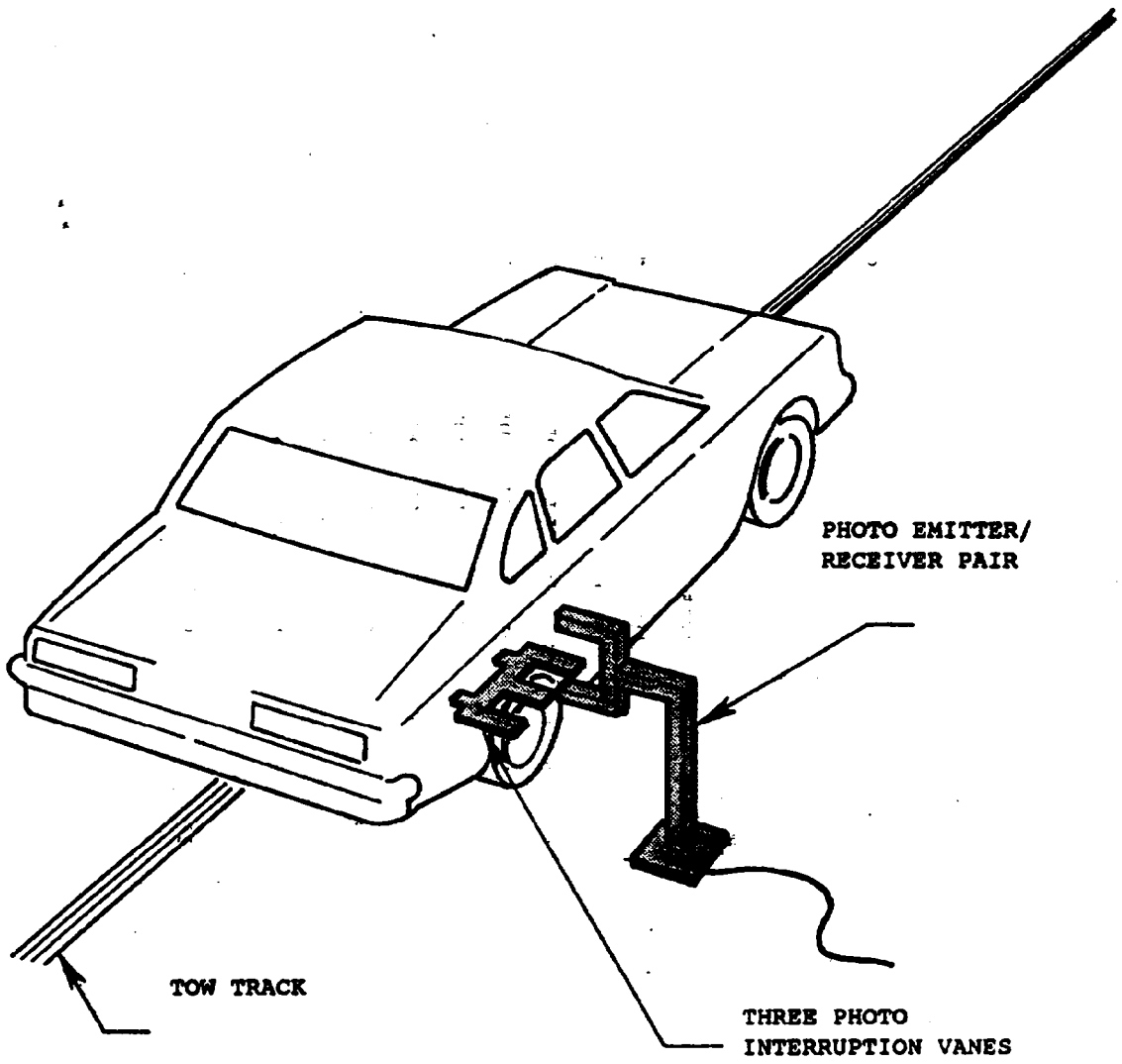
WEIGHT OF BALLAST SECURED TO FRONT SEATS: 200 LBS.

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: None

CG = 40.6 INCHES REARWARD OF FRONT WHEEL CENTERLINE

*Weight chosen to match the test conducted on February 4, 1993.

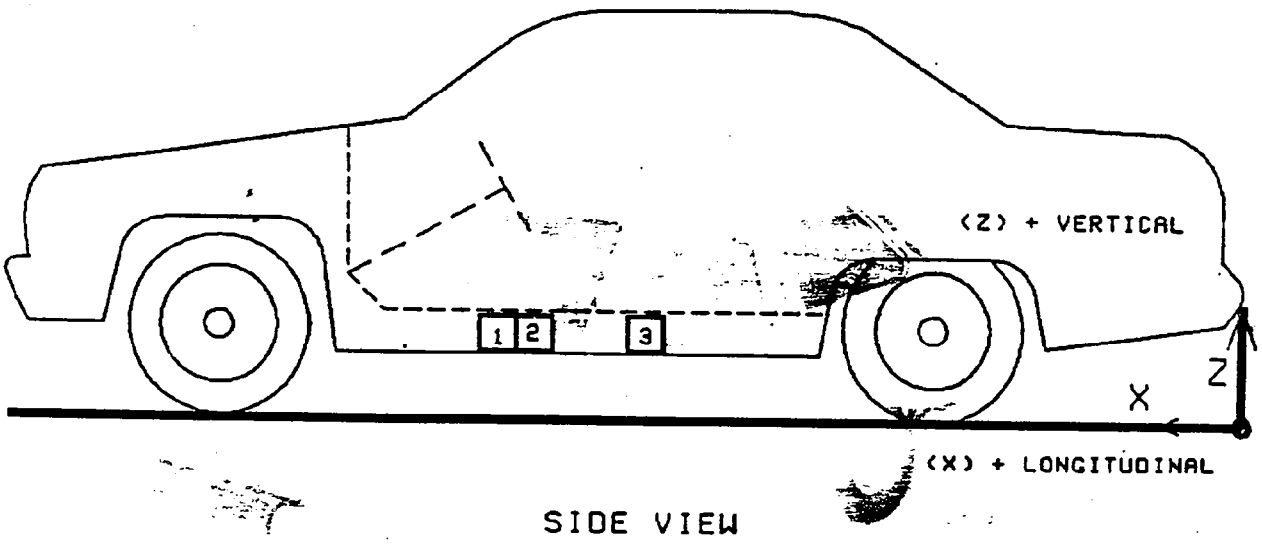
FIGURE 4 IMPACT VELOCITY MEASUREMENT SYSTEM



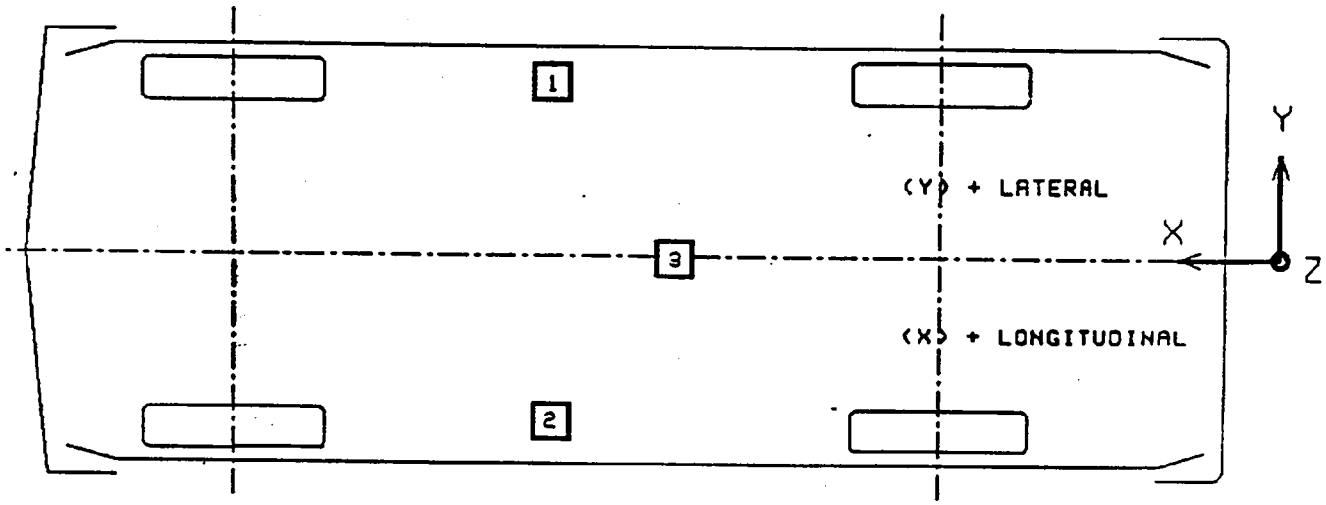
The final vane clears emitter/receiver two inches before impact.

The vanes have one foot spacing.

FIGURE 5 STRIKING VEHICLE INSTRUMENTATION PLACEMENT



SIDE VIEW



BOTTOM VIEW

TABLE 6

STRIKING VEHICLE INSTRUMENTATION LOCATIONS AND DATA SUMMARY

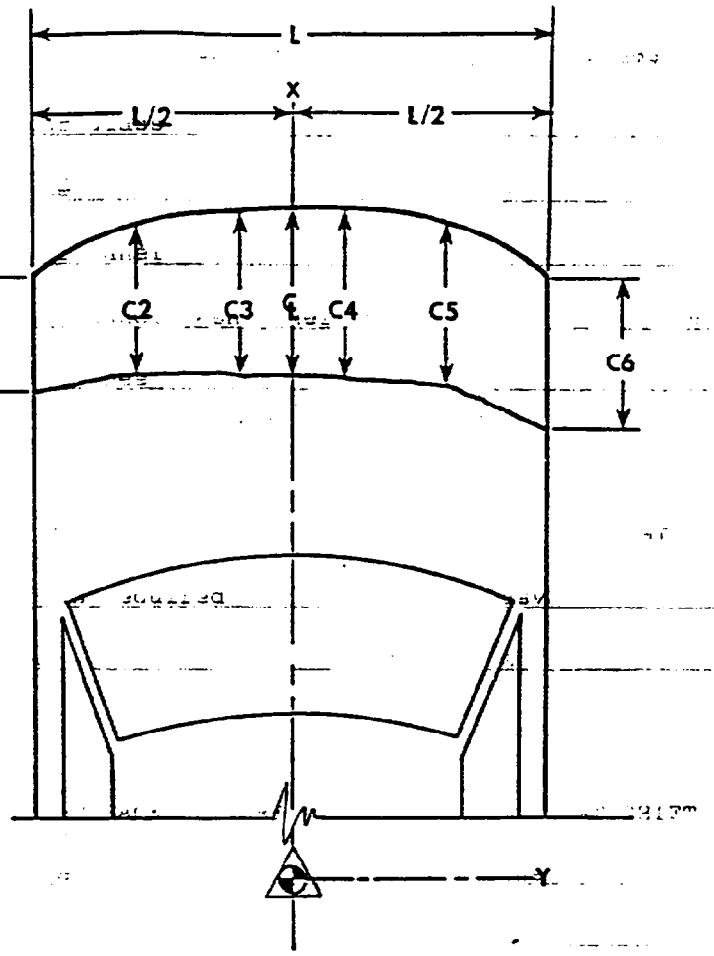
TEST NUMBER 930212

No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION MAX	POSITIVE DIRECTION MSEC	NEGATIVE DIRECTION MAX	NEGATIVE DIRECTION MSEC
1	LEFT FRONT DOOR SILL ACCELERATION (G)	116.5	26.8	11.6				
	LONGITUDINAL				1.4	273.9	13.9	42.9
2	RIGHT FRONT DOOR SILL ACCELERATION (G)	115.6	-26.8	11.1				
	LONGITUDINAL				2.0	272.4	14.5	60.9
3	VEHICLE CENTER OF GRAVITY ACCELERATION (G)	114.5	0.0	11.9				
	LONGITUDINAL				1.6	276.0	13.8	42.6
	LATERAL				6.2	107.1	5.7	11.6

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM REAR BUMPER
Y: + LEFTWARD FROM VEHICLE CENTERLINE
Z: + UPWARD FROM GROUND LEVEL

FIGURE 6. STRIKING VEHICLE CRUSH



NOTES: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.
All measurements are in inches.

Striking Vehicle Ford Taurus

	PRE-TEST	POST-TEST	CRUSH
L	60.0		
C1	182.4	178.9	3.5
C2	186.1	183.1	3.0
C3	187.4	185.2	2.2
C4	187.8	186.4	1.4
C5	186.4	185.0	1.4
C6	183.0	182.5	0.5
CL	187.9	186.2	1.7

FIGURE 7 STRIKING VEHICLE PRE-TEST AND POST-TEST MEASUREMENT POINTS

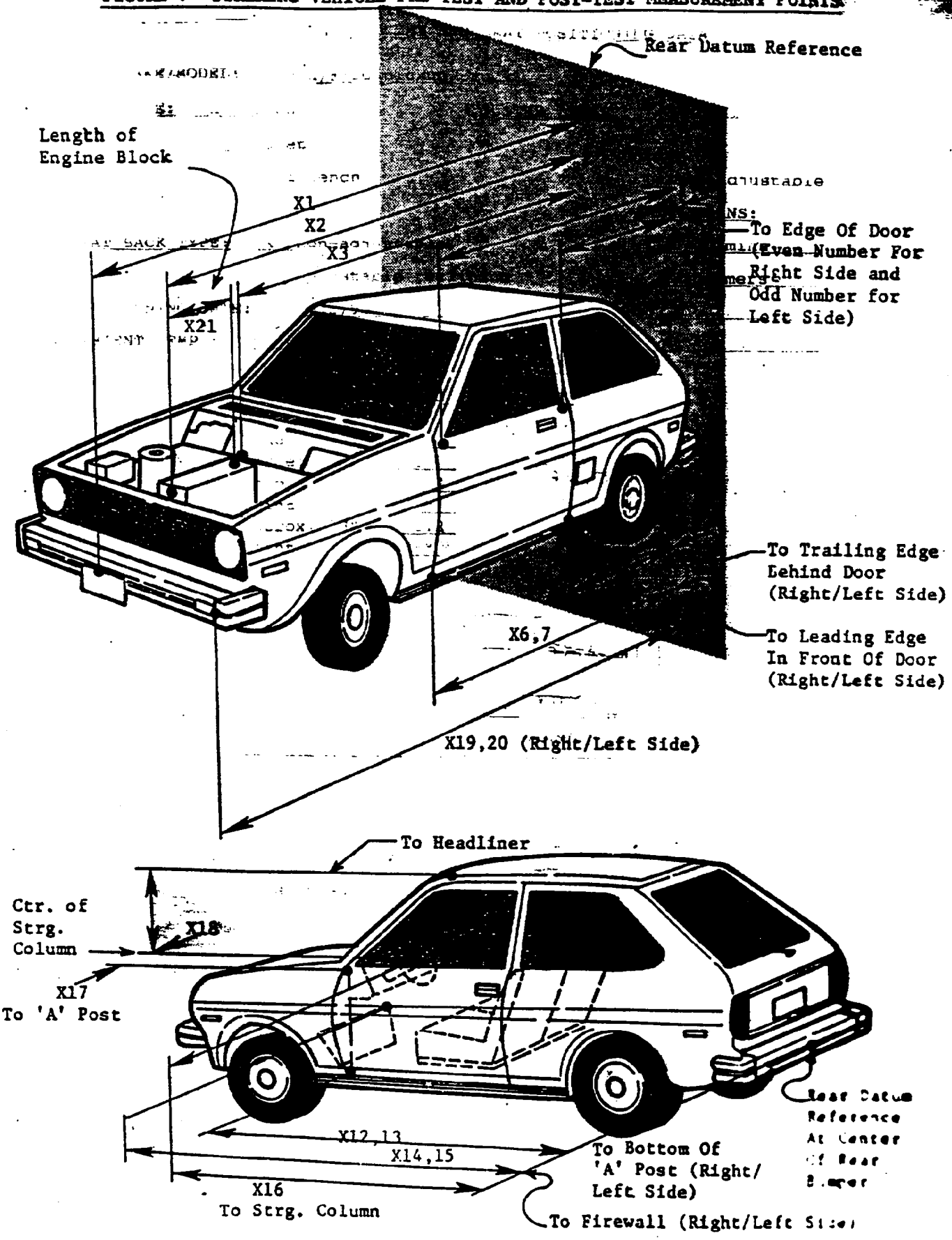


TABLE 7 STRIKING VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL: Ford/Taurus TEST NUMBER: 930212

ALL MEASUREMENTS ARE IN INCHES

NO.	TYPE OF MEASUREMENT	PRE-TEST	POST-TEST	DIFF.
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	187.9	186.2	1.7
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	159.2	158.8	0.4
X3	REAR SURFACE OF VEHICLE TO FIREWALL	142.6	142.8	-0.2
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	130.6	130.9	-0.3
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	130.9	130.8	0.1
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	127.2	127.4	-0.2
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	128.0	127.8	0.2
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	87.7	88.0	-0.3
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	87.9	88.0	-0.1
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	86.7	86.5	0.2
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	86.8	86.5	0.3
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	127.6	127.2	0.4
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	127.4	127.2	0.2
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	140.9	140.5	0.4
X15	REAR SURFACE OF VEHICLE TO FIREWALL - LEFT SIDE	140.2	139.9	0.3
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	112.4	111.6	0.8
X17	CENTER OF STEERING COLUMN TO "A" POST	10.6	10.5	0.1
X18	CENTER OF STEERING COLUMN TO HEADLINER	16.9	16.5	0.4
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	183.0	182.5	0.5
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	182.4	178.9	3.5
X21	LENGTH OF ENGINE BLOCK	18.2	18.2	0.0

SECTION 5.0

OCCUPANT AND CAMERA INFORMATION

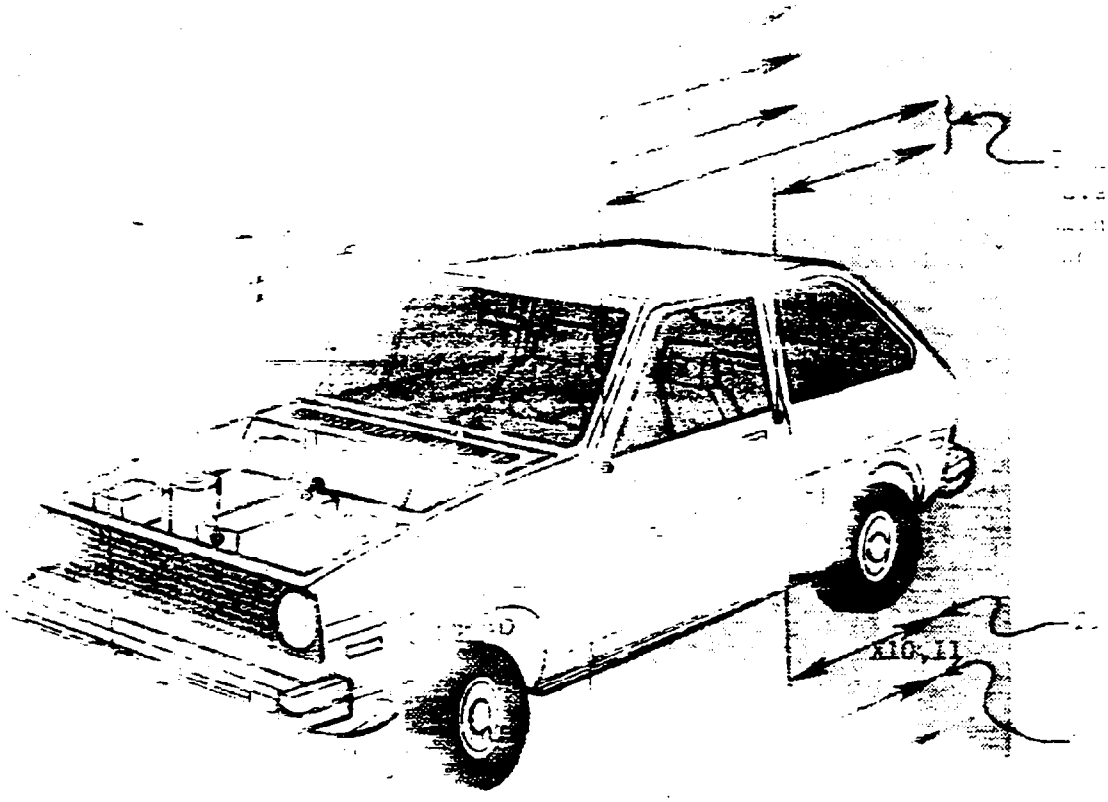


TABLE 8

DUMMY DATA SUMMARY

TEST NUMBER 930212

	DRIVER DUMMY SN: 903			
	POSITIVE DIRECTION		NEGATIVE DIRECTION	
	MAX	MSEC	MAX	MSEC
HEAD ACCELERATION (G)				
LONGITUDINAL	85.9	91.8	149.2	91.4
LATERAL	78.3	91.8	197.8	91.3
VERTICAL	218.5	91.5	106.9	91.0
RESULTANT	262.3	91.5		
HIC	466 FROM 90.6 TO 92.0			
UPPER SPINE ACCELERATION (G)				
LONGITUDINAL	8.8	130.6	9.7	87.5
LATERAL (P)	5.2	216.9	28.8	75.6
LATERAL (R)	5.6	220.0	27.5	76.3
VERTICAL	14.3	44.4	10.9	73.8
RESULTANT (P)	31.0	75.6		
RESULTANT (R)	29.7	75.6		
LOWER SPINE ACCELERATION (G)				
LONGITUDINAL	8.4	96.3	11.2	61.9
LATERAL (P)	7.2	155.0	35.9	56.9
LATERAL (R)	7.7	154.4	35.1	56.3
VERTICAL	16.4	45.6	6.0	110.6
RESULTANT (P)	36.4	56.3		
RESULTANT (R)	35.7	56.3		
LEFT UPPER THORAX RIB ACCELERATION (G)				
LATERAL (P)	4.6	108.1	29.1	61.9
LATERAL (R)	5.0	98.7	29.3	61.9
LEFT LOWER THORAX RIB ACCELERATION (G)				
LATERAL (P)	8.3	88.8	31.9	59.4
LATERAL (R)	9.3	88.8	31.5	60.0
TTI	33.9			
PELVIS ACCELERATION (G)				
LONGITUDINAL	17.1	42.5	16.6	53.1
LATERAL	12.0	88.8	48.0	45.0
VERTICAL	21.2	42.5	8.1	102.5
RESULTANT	53.5	43.8		

POSITIVE DIRECTION		NEGATIVE DIRECTION	
LONGITUDINAL:	FORWARD	LONGITUDINAL:	REARWARD
LATERAL:	LEFTWARD	LATERAL:	RIGHTWARD
VERTICAL:	UPWARD	VERTICAL:	DOWNWARD

TABLE 9 POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #903	PASSENGER #
HEAD	Door glass	NA
CHEST	None	NA
ABDOMEN	Door panel	NA
LEFT KNEE	Door panel/dash panel	NA
RIGHT KNEE	Left knee	NA

DOOR OPENING:

	LEFT	RIGHT
FRONT	Tools required	Easy
REAR	NA	NA

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
FRONT	None	None
REAR	NA	NA

GLAZING DAMAGE:

The left half of the windshield cracked.

OTHER NOTABLE IMPACT EFFECTS:

None

FIGURE 8 DUMMY AND SEAT POSITIONING DATA

MFR./MAKE/MODEL: Ford/F150/pickup truck

SEAT TYPE: X Bench
_____Bucket
_____Split bench

ADJUSTER TYPE: _____Manual
_____Power
X Non-adjustable

SEAT BACK TYPE: X Non-adjustable
_____Adjustable reclining

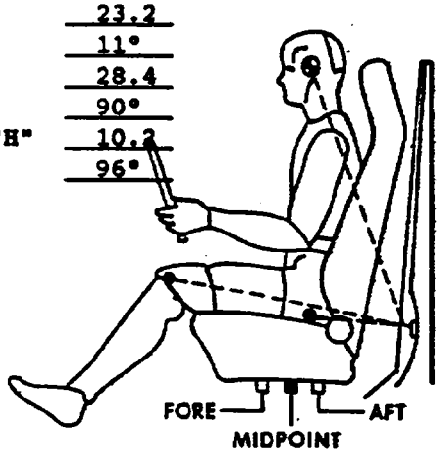
TECHNICIANS:
1. P. Cummins
2. D. Summers
3. _____
4. _____

POSITIONING DATE: 02/12/93

AMBIENT TEMP.: 70° F TIME: 1020

DRIVER DUMMY* # 903 TYPE: SID

Head	23.2
Target	11°
Knee	28.4
Joint	90°
Approx. "H"	10.2
Point	96°

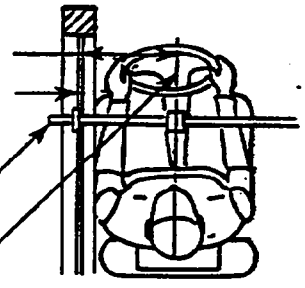


13.0

DOOR GLASS
HEIGHT = 11.2

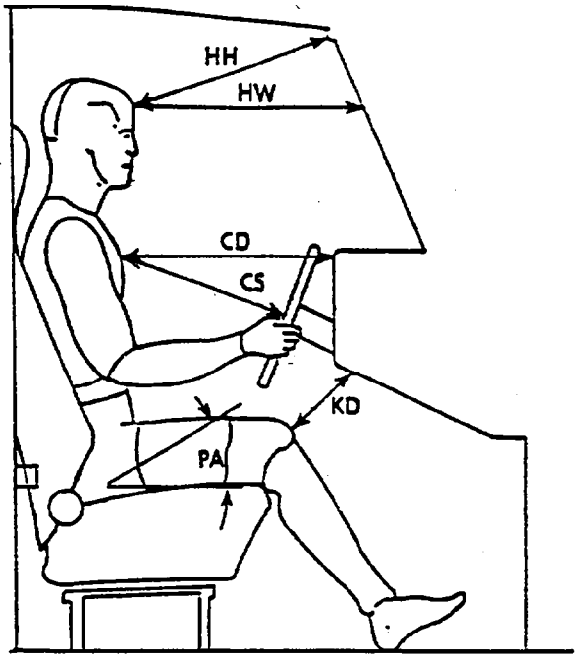
LATERAL BAR

ADJUSTABLE
POINTER



*Driver dummy measurements are referenced to top of front door striker.
ALL DISTANCE MEASUREMENTS ARE IN INCHES.
ALL ANGLES ARE REFERENCED TO VERTICAL.

FIGURE 9 DUMMY LONGITUDINAL CLEARANCE MEASUREMENTS



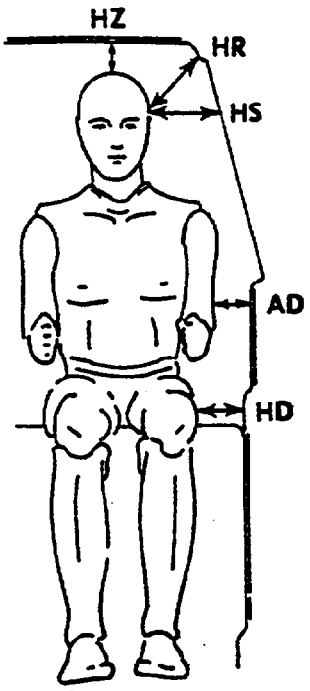
HH	20.9
HW	24.5
CD	23.1
CS	13.0
KDL	5.0
KDR	5.2
PA	19°
HB	NA
NB	NA
CB	NA
KBL	NA
KBR	NA

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

ALL ANGLES ARE REFERENCED TO HORIZONTAL.

NOTE: FOR TWO-DOOR VEHICLES, THE REAR PASSENGER'S PHX AND PHZ MEASUREMENTS ARE REFERENCED TO THE FRONT DOOR STRIKER.

FIGURE 10 DUMMY LATERAL CLEARANCE MEASUREMENTS



HR	8.1
HS	9.9
AD	4.2
HD	6.1
HZ	5.7

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

FIGURE 11

CAMERA POSITIONS

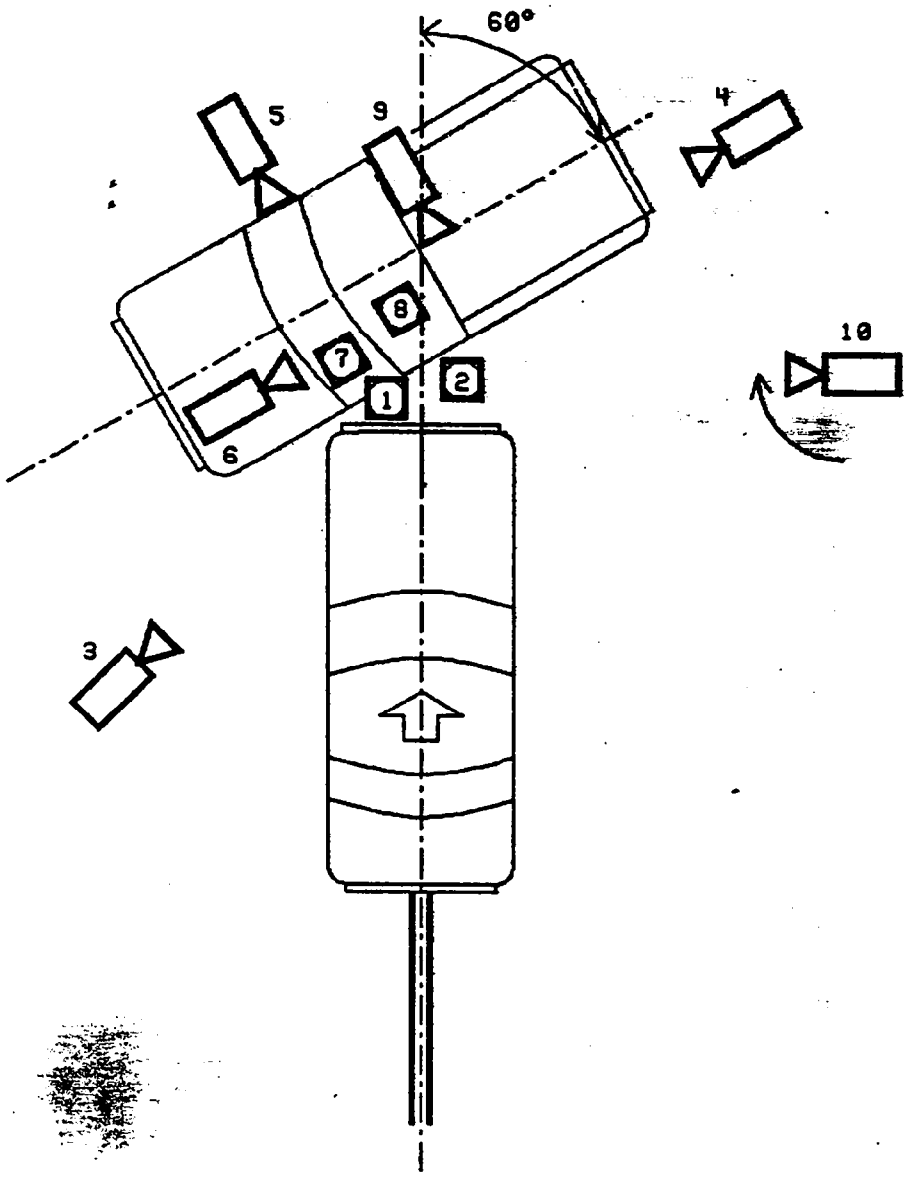


TABLE 10 CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Overhead wide	Photosonic	8	500	Vehicle dynamics
2	Overhead tight	Photosonic	25	485	Vehicle dynamics
3	Left angle	Photosonic	13	500	Vehicle dynamics
4	Right angle	Photosonic	13	498	Vehicle dynamics
5	Onboard side	Photosonic	8	503	Dummy kinematics
6	Onboard windshield	Photosonic	8	500	Dummy kinematics
7	Pit - front	Photosonic	13	793	Vehicle dynamics
8	Pit - rear	Photosonic	17	820	Vehicle dynamics
9	Onboard - tank	Photosonic	25	500	Sending unit view
10	Panning	Beaulieu	12-120	24	Real-time panning

APPENDIX A

PHOTOGRAPHS

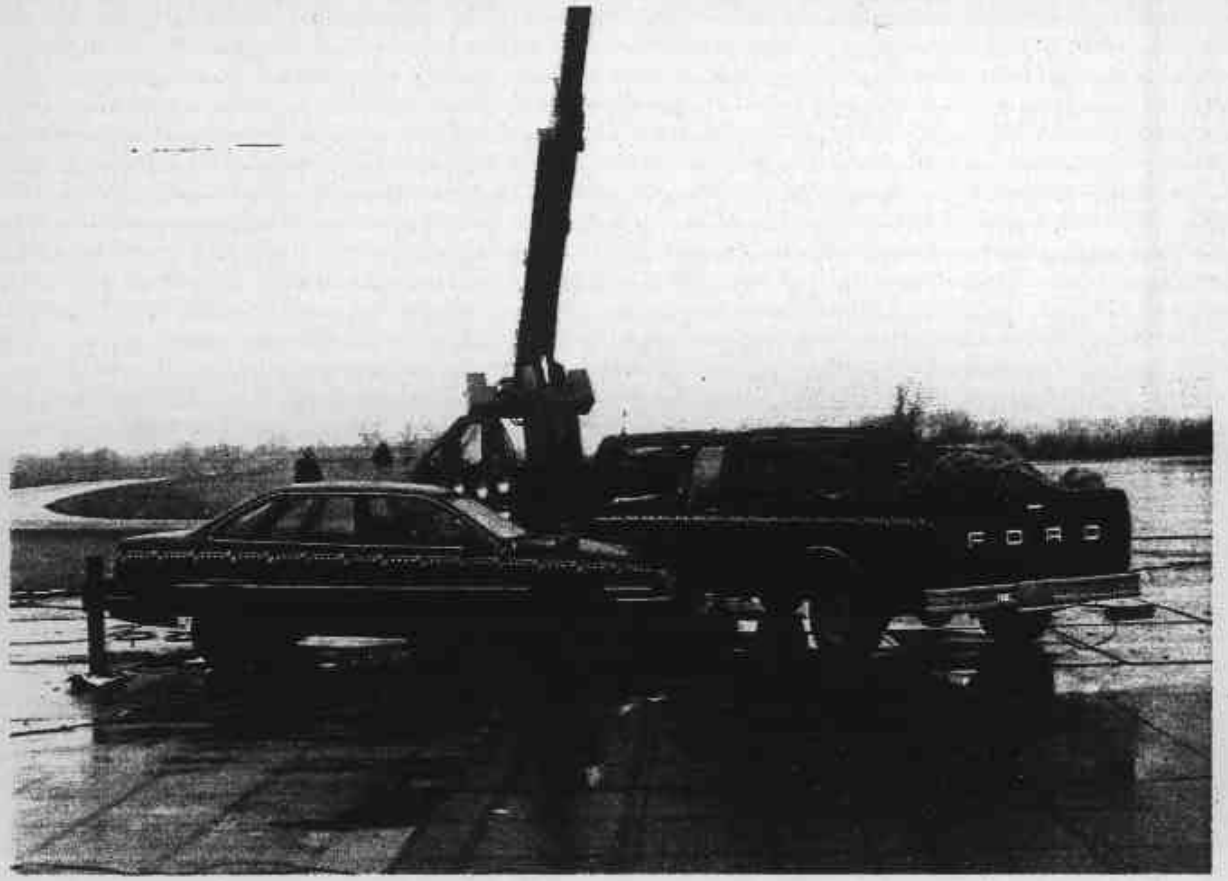


Figure A-1. PRE-TEST LEFT REAR VIEW

Figure A-2. POST-TEST LEFT REAR VIEW

Figure A-3. PRE-TEST RIGHT SIDE VIEW

Figure A-4. POST-TEST RIGHT SIDE VIEW

Figure A-5. PRE-TEST RIGHT FRONT VIEW

Figure A-6. POST-TEST LEFT FRONT VIEW

Figure A-7. PRE-TEST LEFT SIDE VIEW

Figure A-8. POST-TEST LEFT SIDE VIEW

Figure A-9. POST-TEST LEFT SIDE VIEW - CLOSE-UP

Figure A-10. PRE-TEST STRIKING VEHICLE - FRONT VIEW

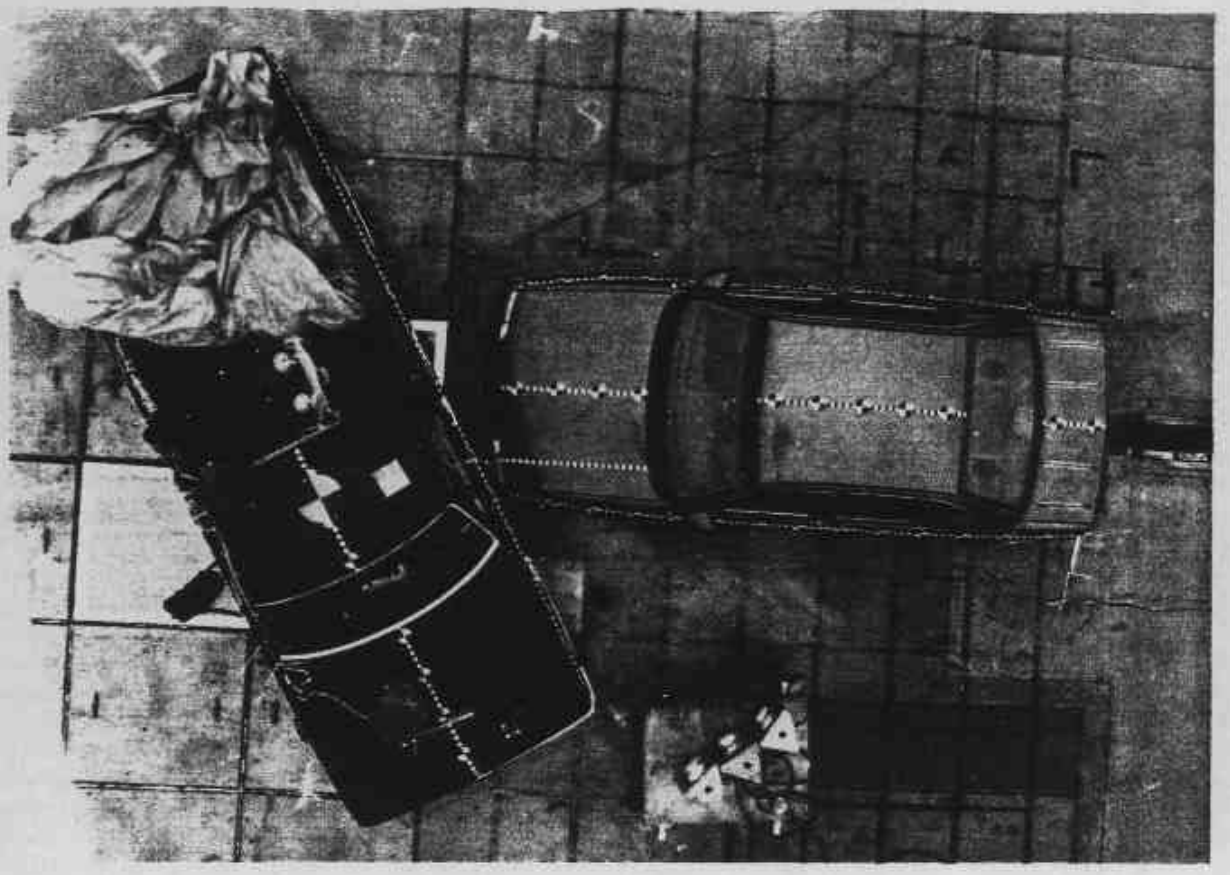


Figure A-11. PRE-TEST OVERHEAD VIEW

Figure A-12. PRE-TEST DRIVER DUMMY POSITION VIEW

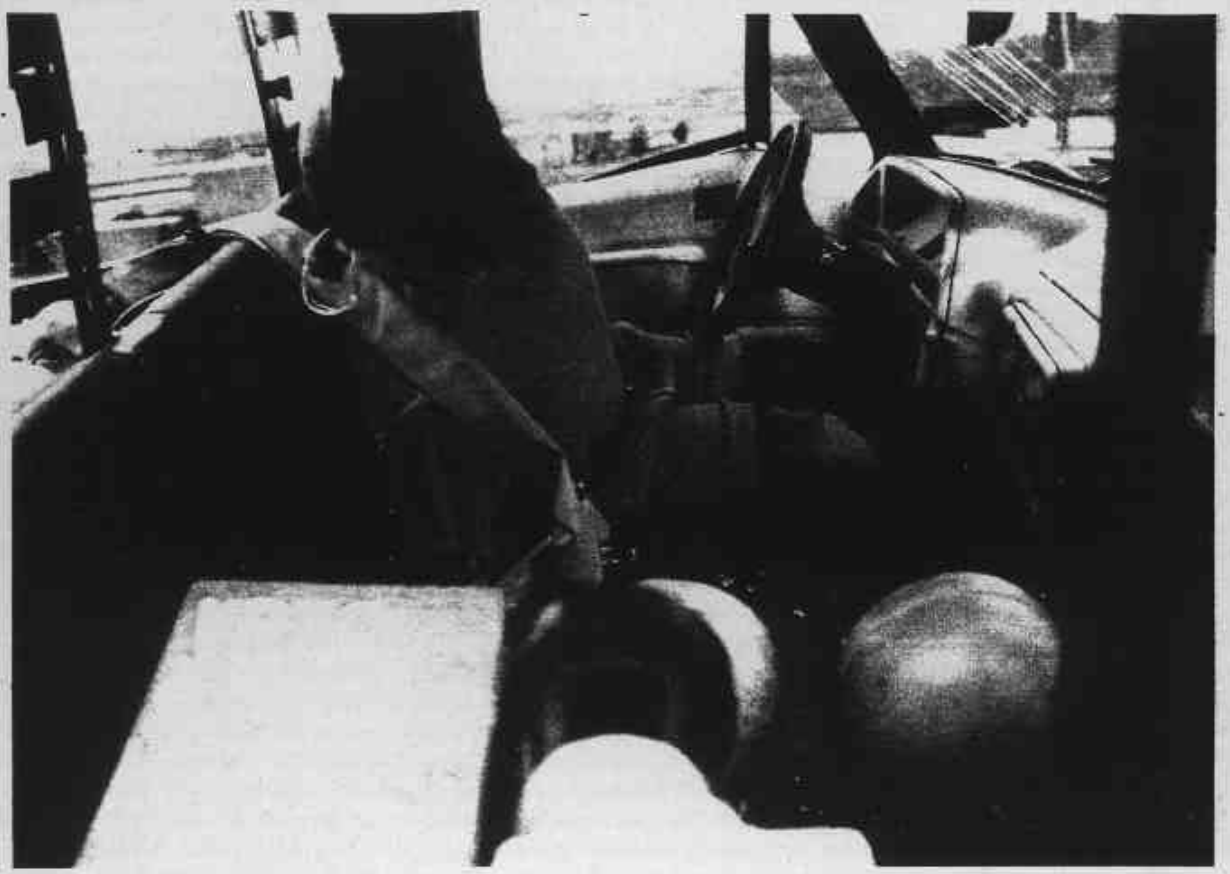


Figure A-13. POST-TEST DRIVER DUMMY POSITION VIEW

Figure A-14. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1

Figure A-15. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2

Figure A-16. PRE-TEST FUEL FILLER CAP VIEW

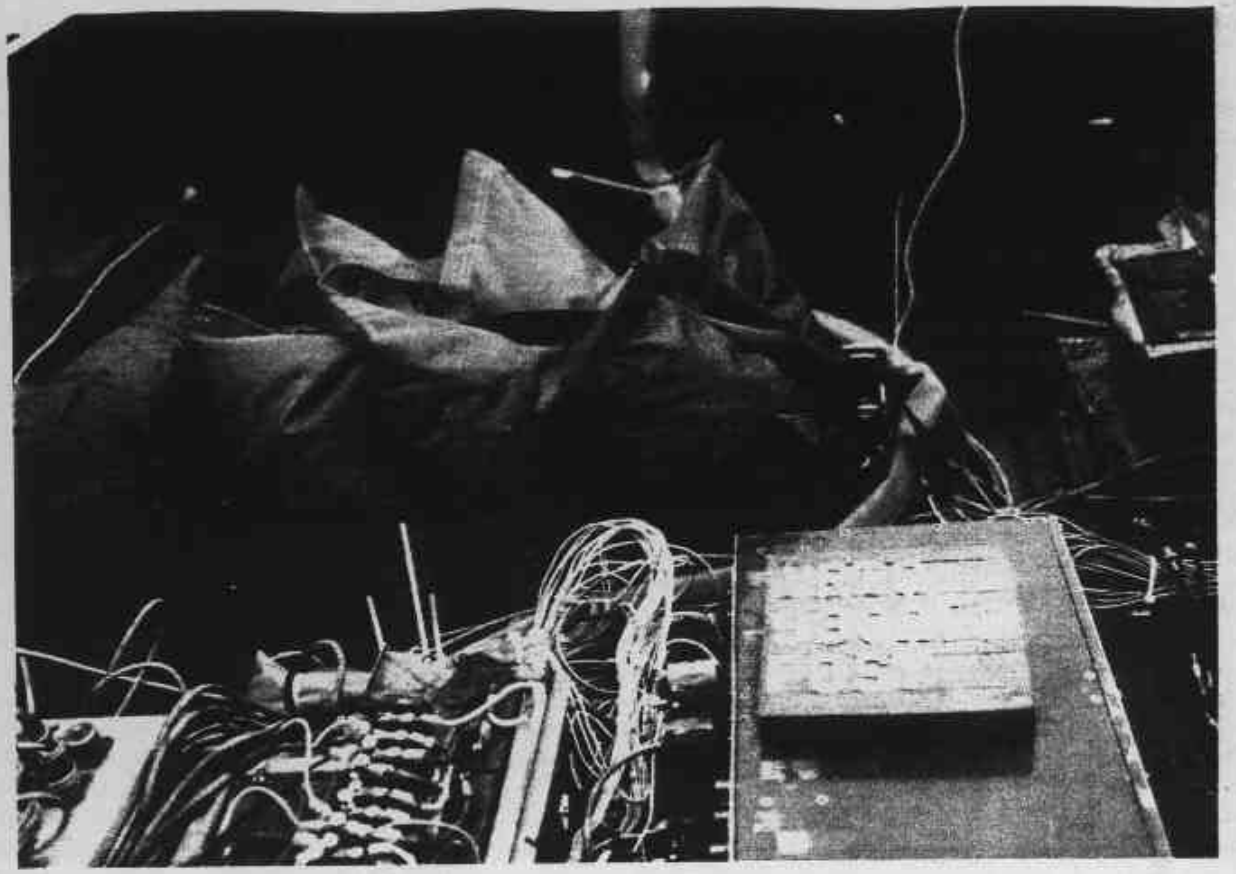


Figure A-17. PRE-TEST BALLAST VIEW

Figure A-18. POST-TEST DRIVER DUMMY CONTACT - VIEW 1

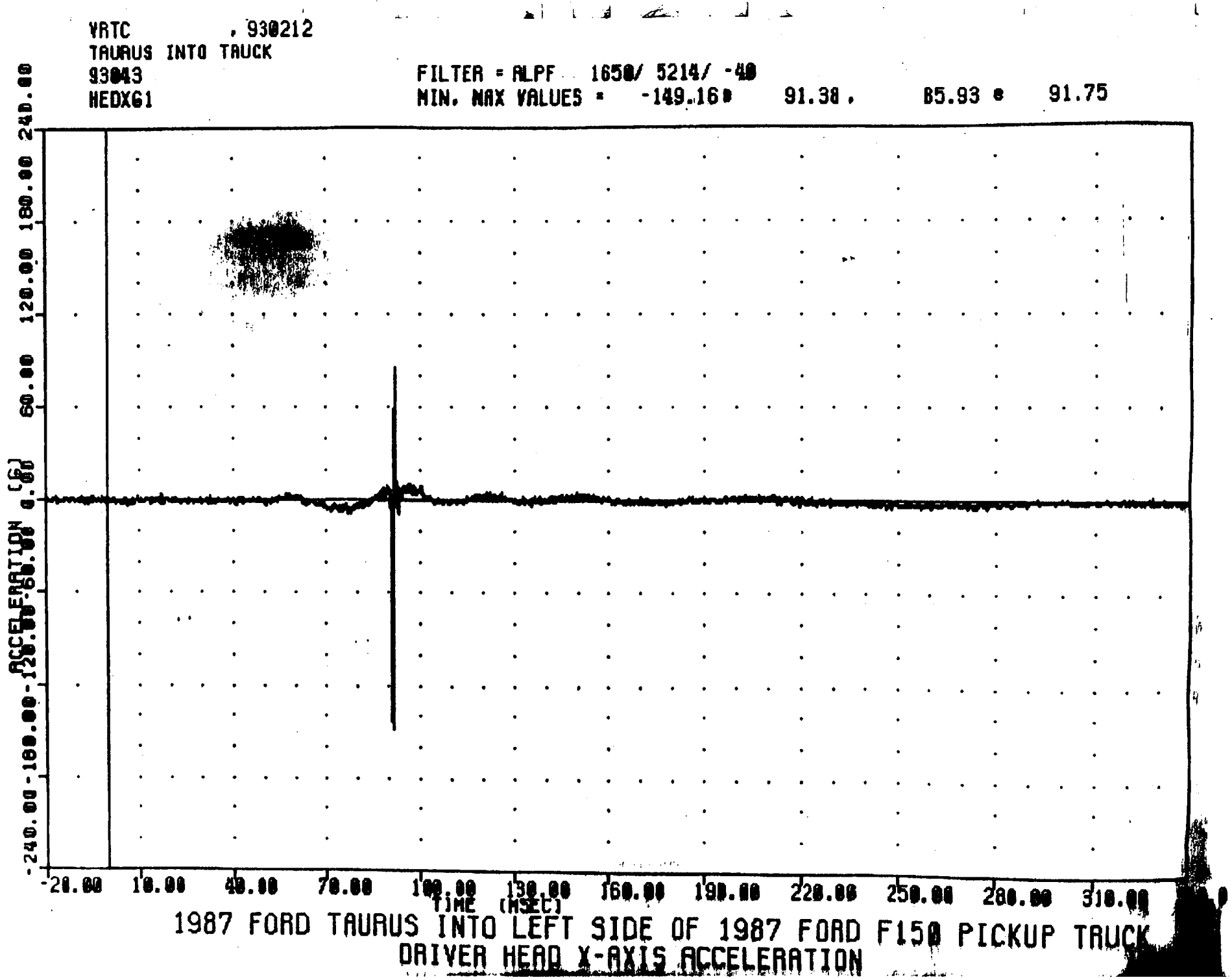
Figure A-19. POST-TEST DRIVER DUMMY CONTACT - VIEW 2

Figure A-20. POST-TEST DRIVER DUMMY CONTACT - VIEW 3

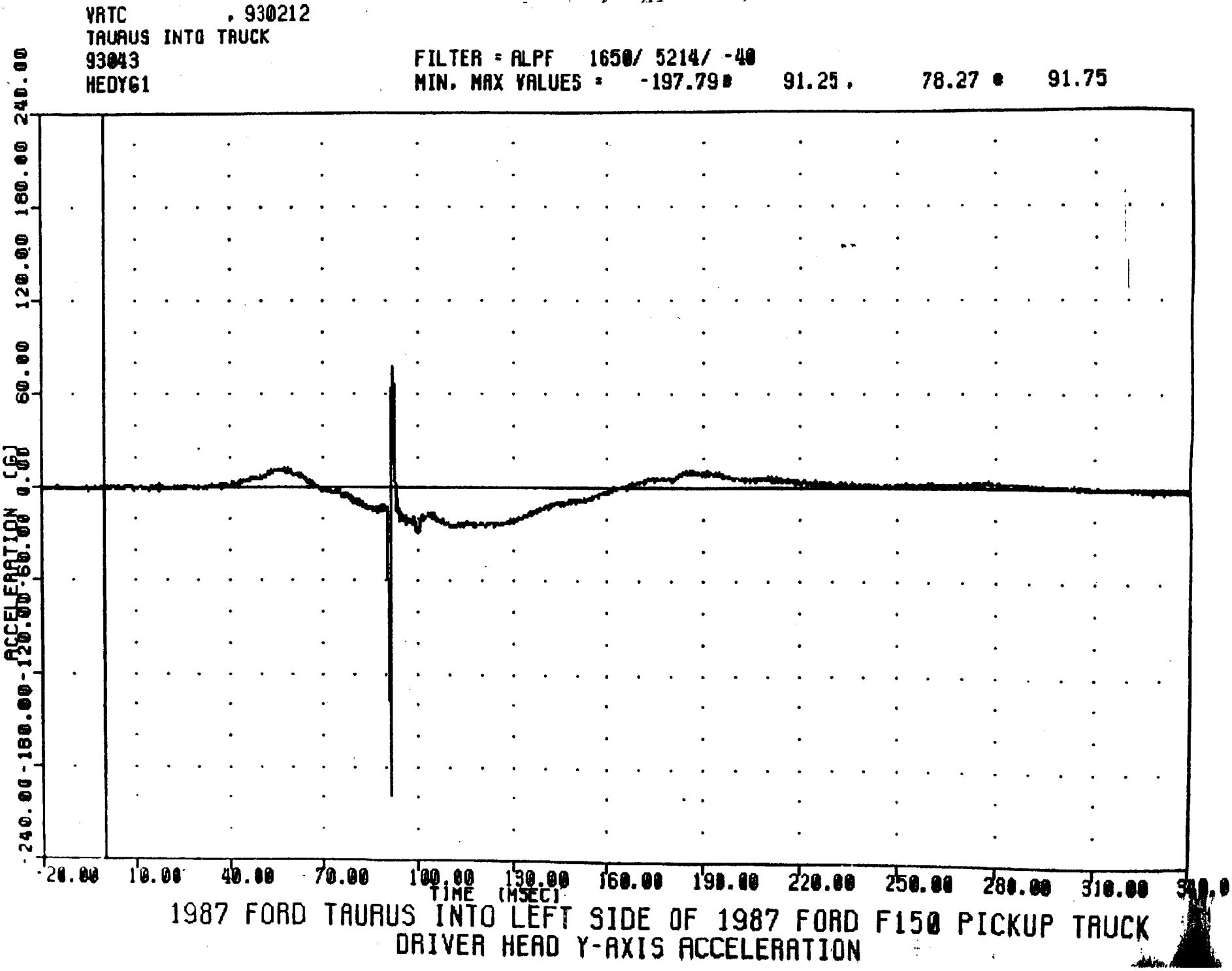
Figure A-21. VEHICLE TO VEHICLE IMPACT EVENT

APPENDIX B

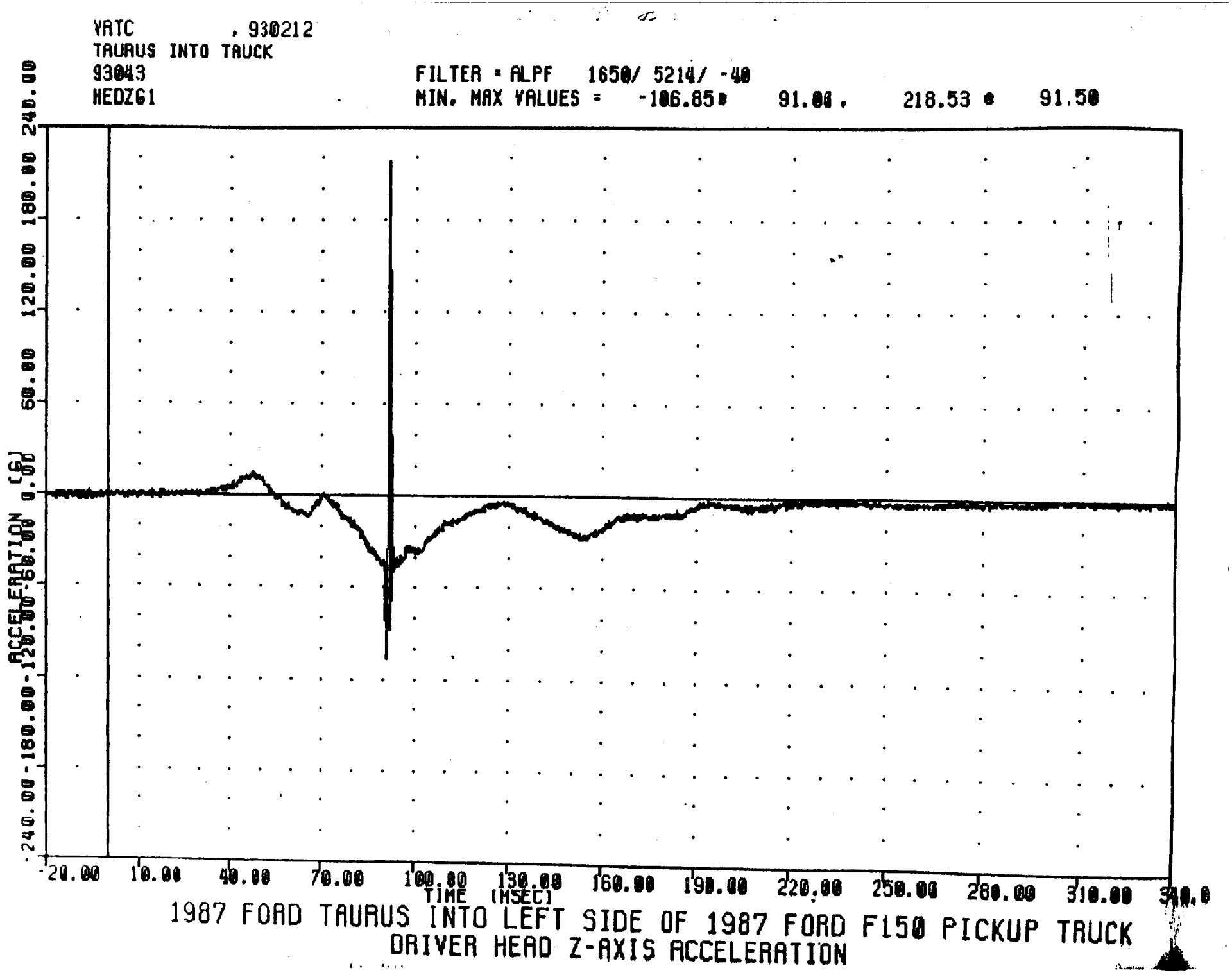
DATA PLOTS



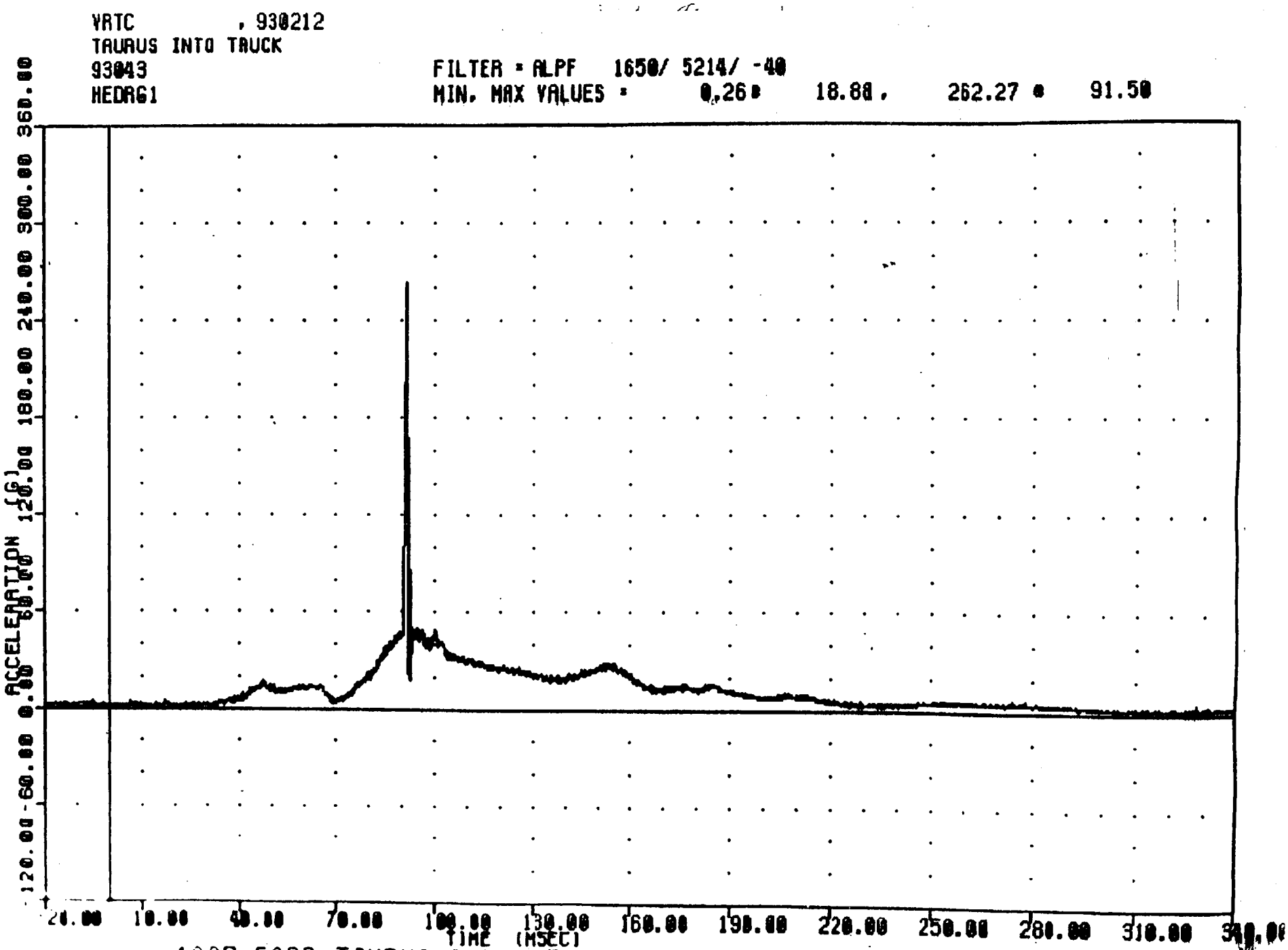
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER HEAD X-AXIS ACCELERATION



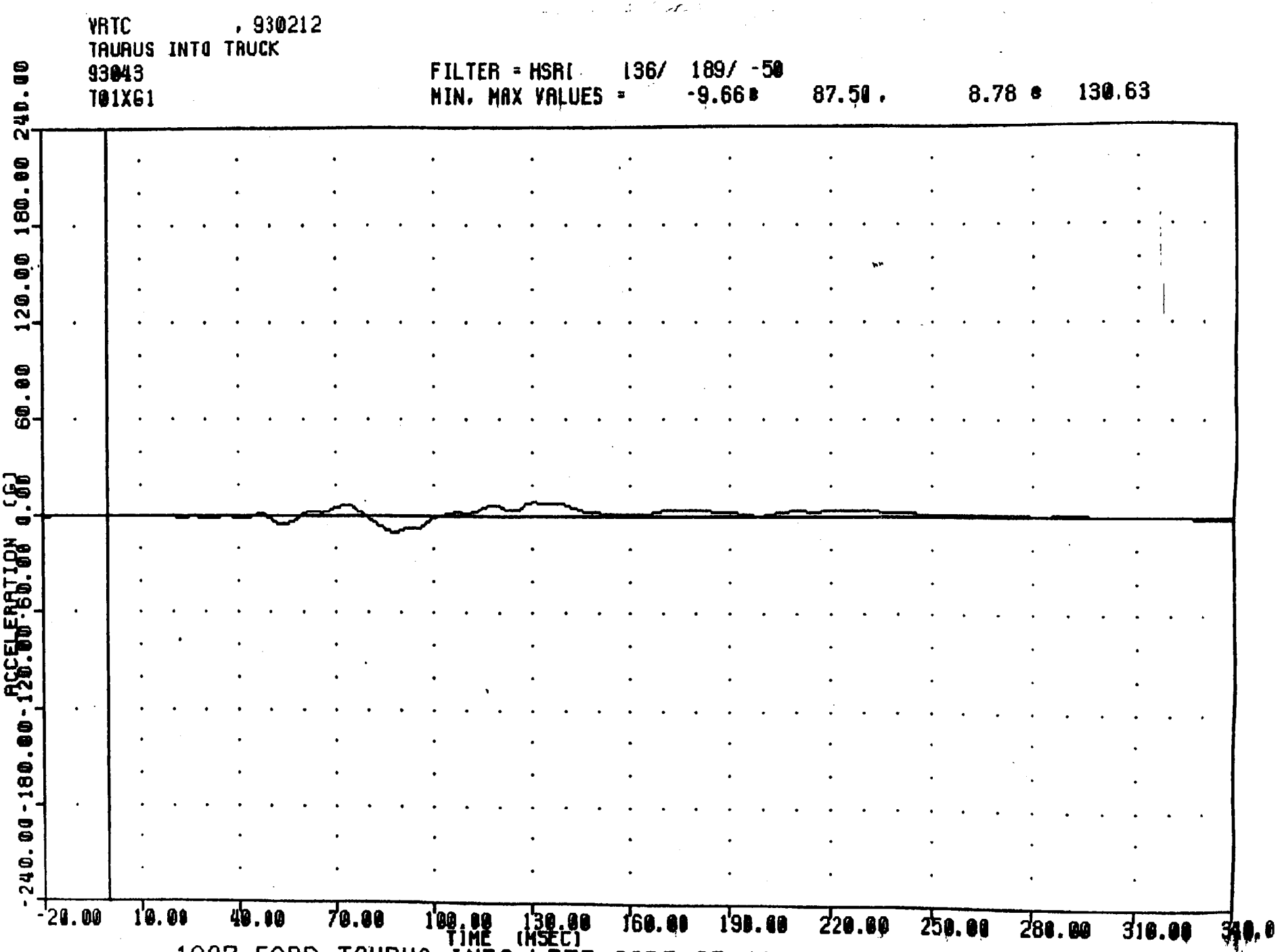
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER HEAD Y-AXIS ACCELERATION



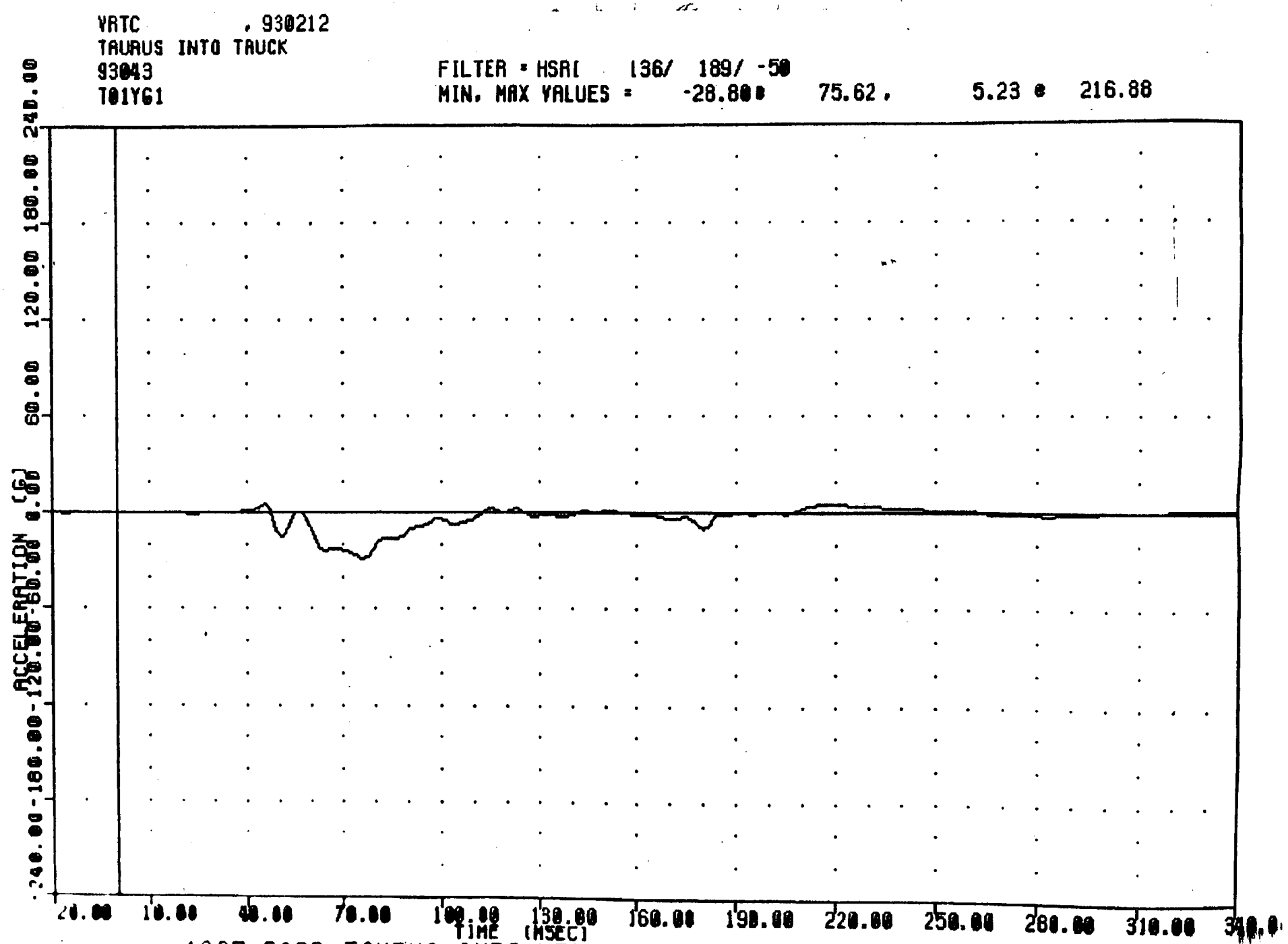
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER HEAD Z-AXIS ACCELERATION



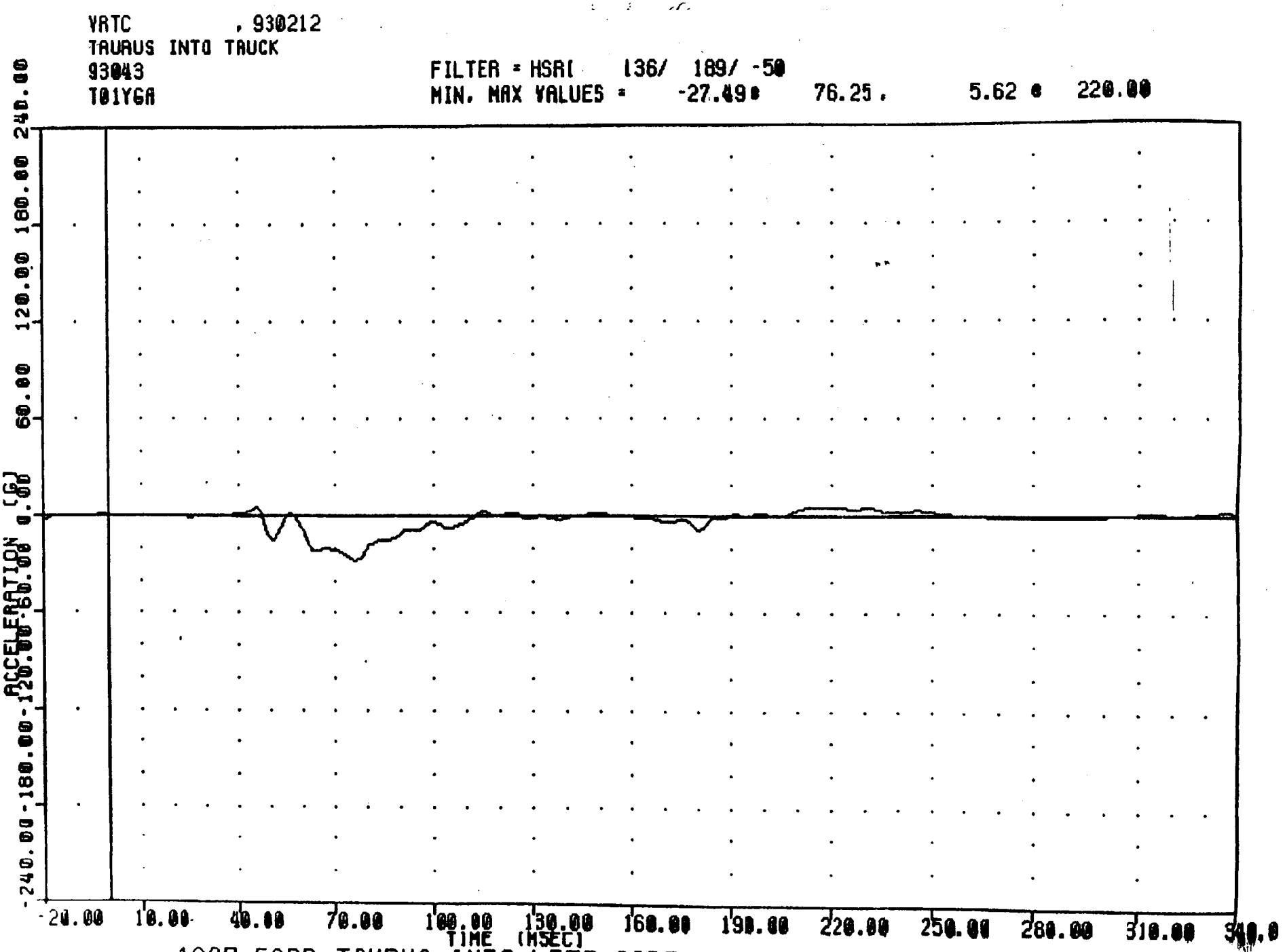
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER HEAD RESULTANT ACCELERATION



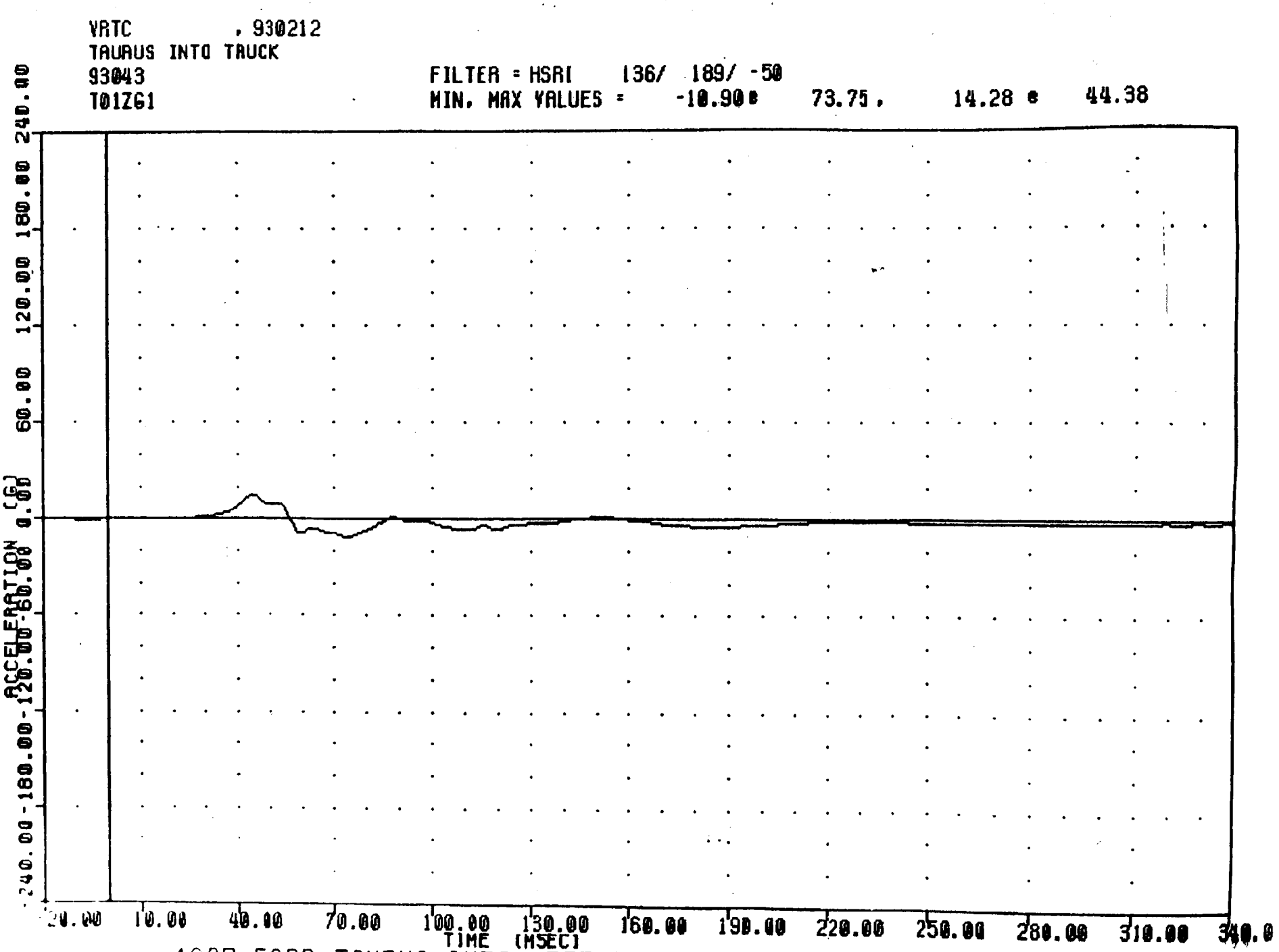
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER UPPER SPINE X-AXIS ACCELERATION



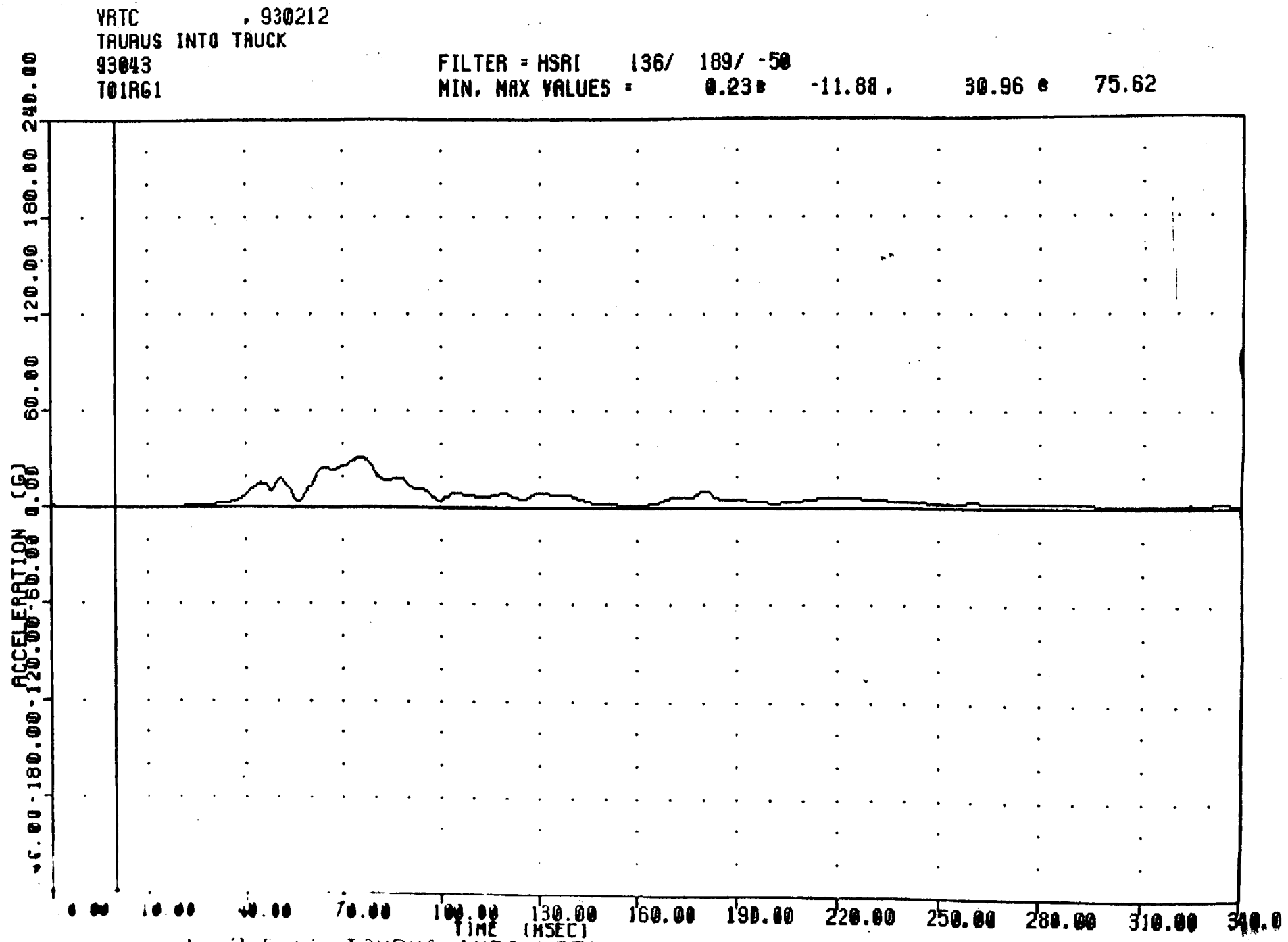
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER UPPER SPINE Y-AXIS ACCELERATION



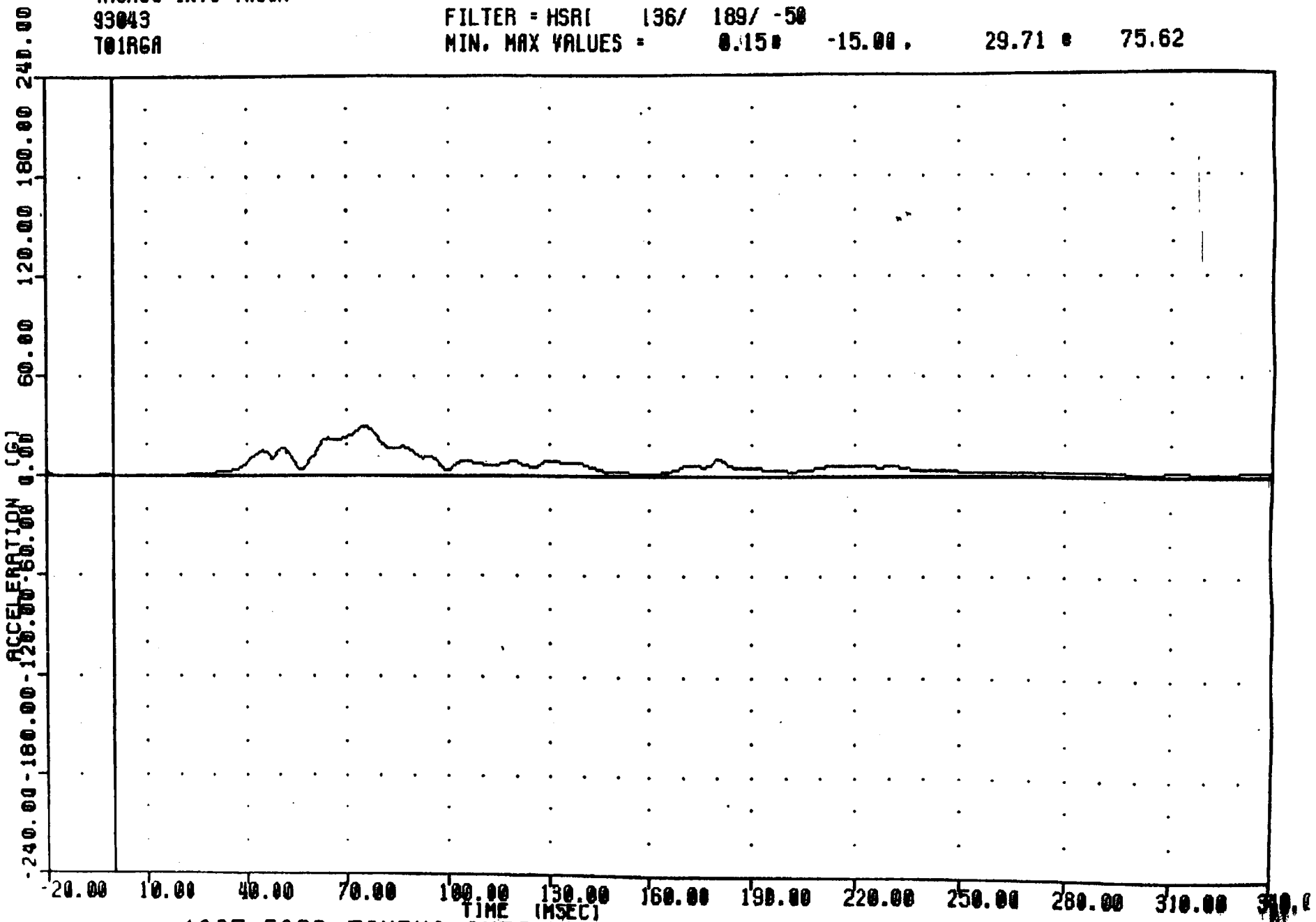
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER UPPER SPINE Y-AXIS REDUNDANT ACCELERATION



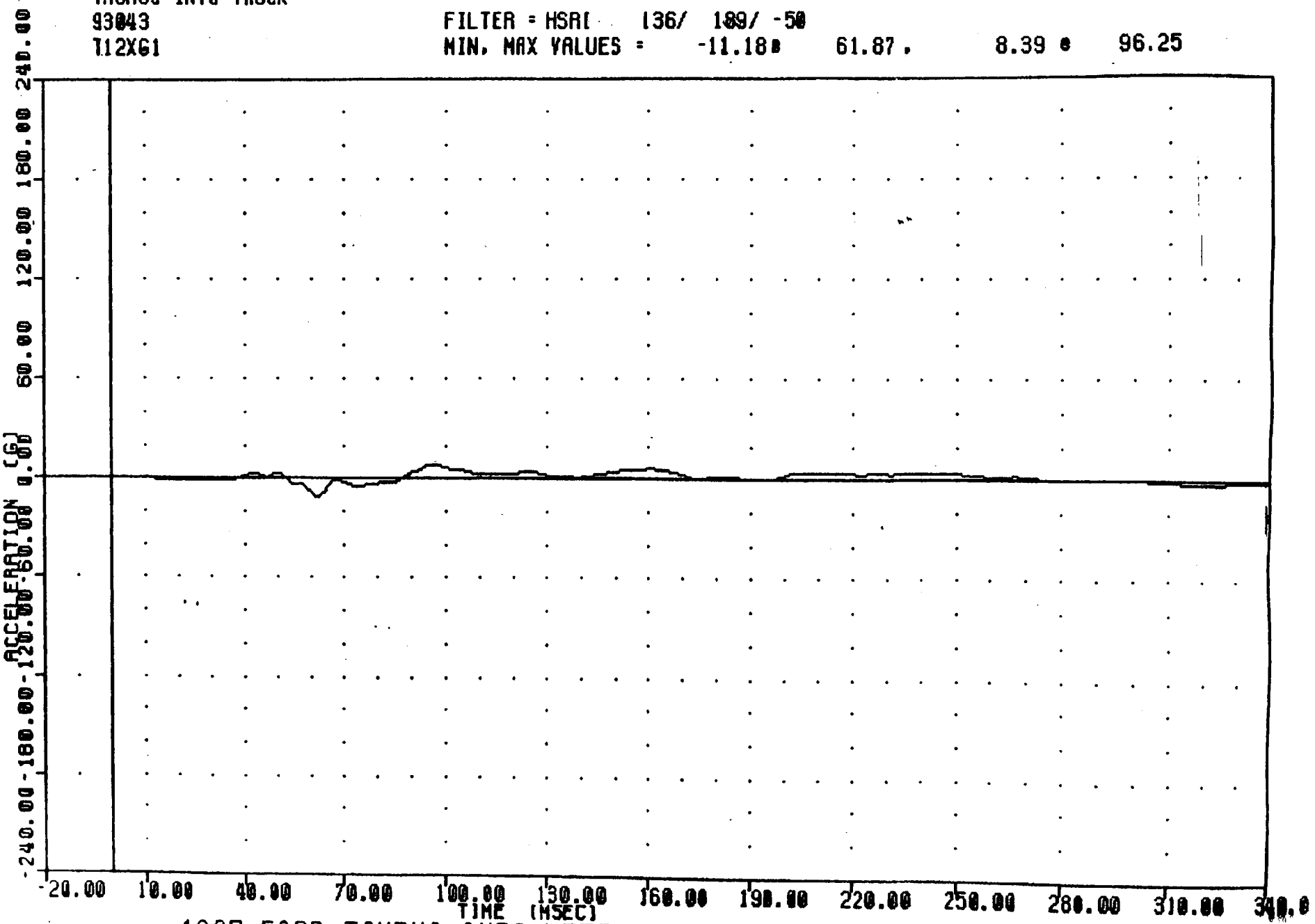
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER UPPER SPINE Z-AXIS ACCELERATION



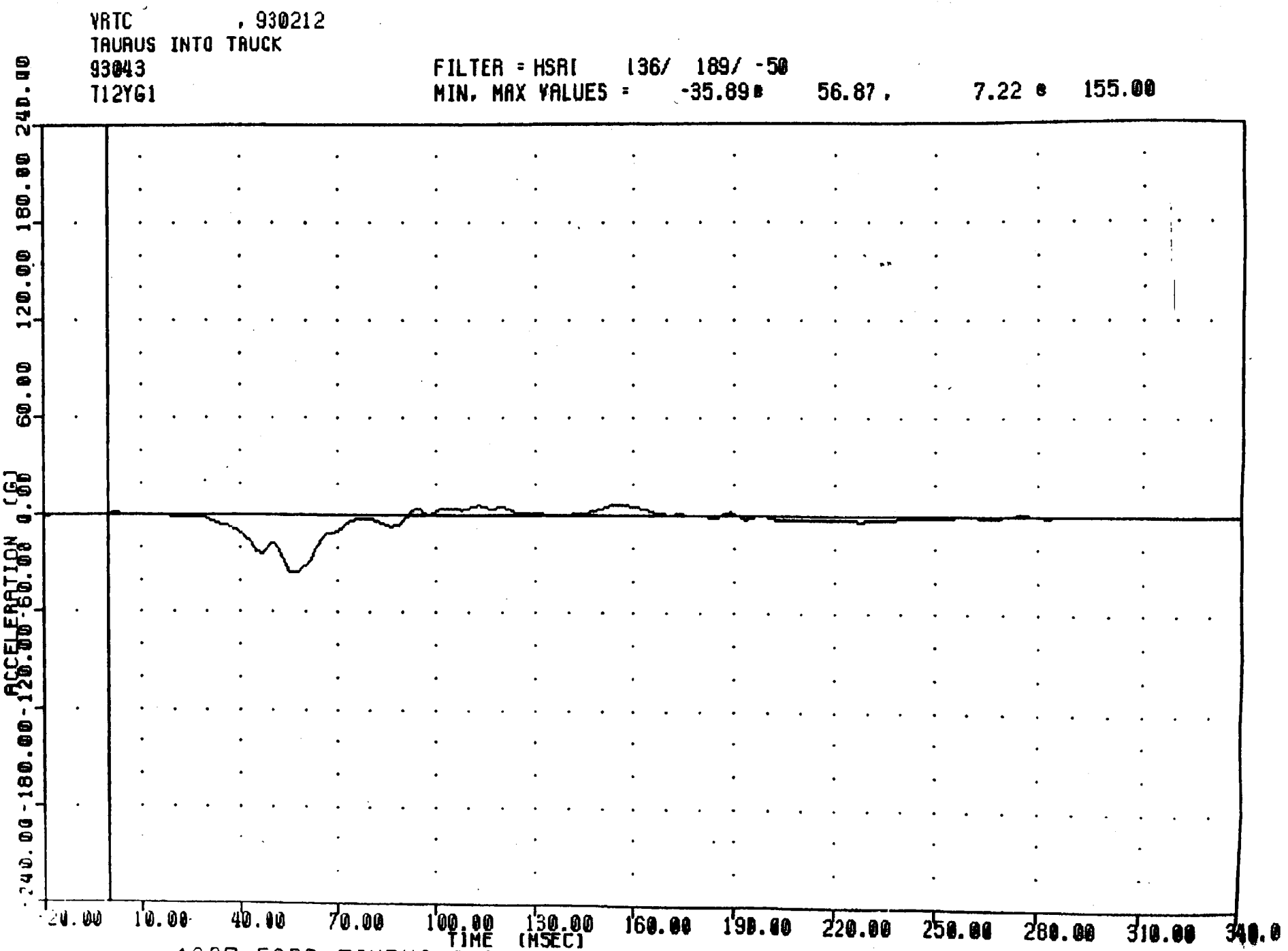
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER UPPER SPINE RESULTANT ACCELERATION



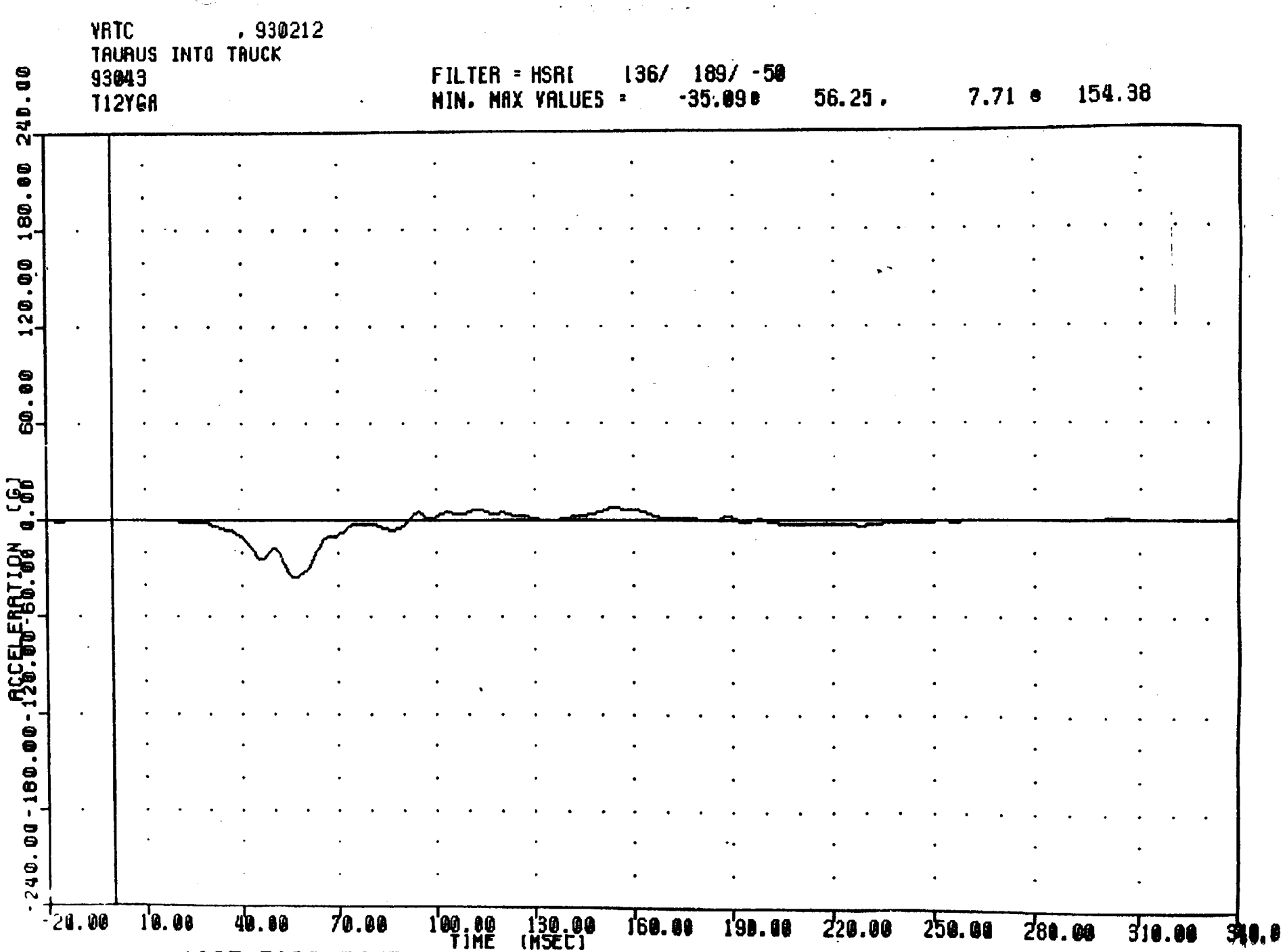
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER UPPER SPINE RESULTANT REDUNDANT ACCELERATION



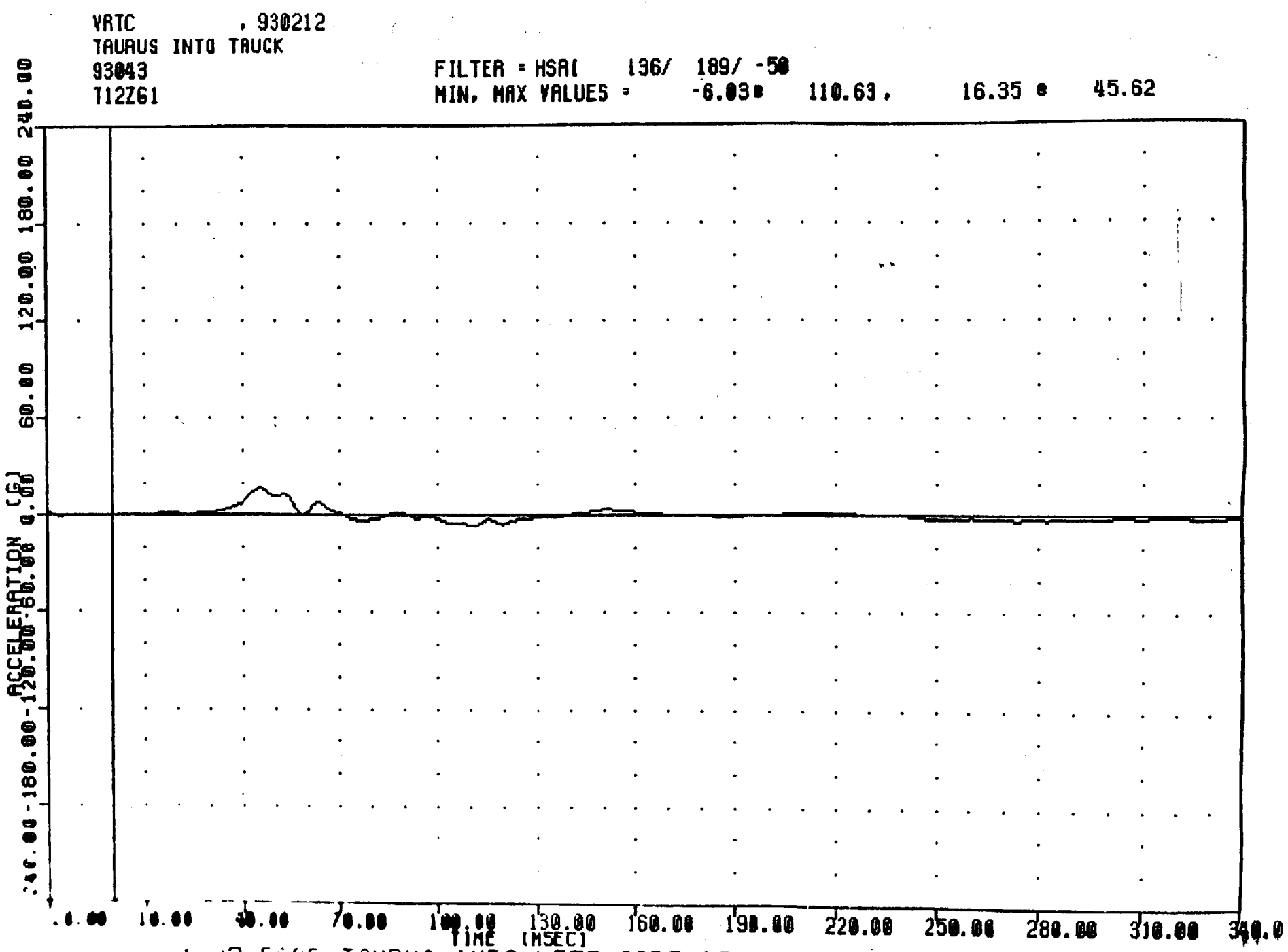
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LOWER SPINE X-AXIS ACCELERATION



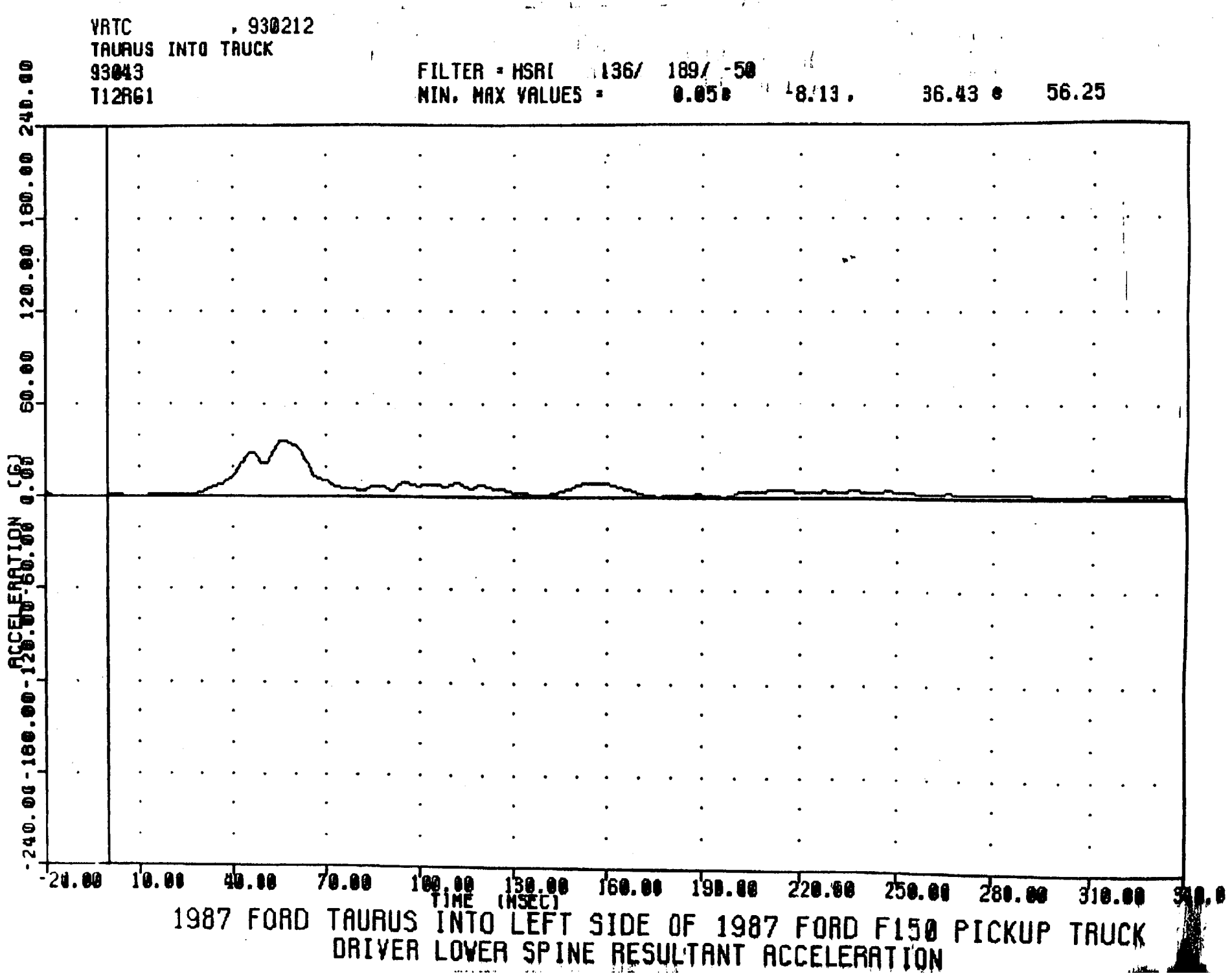
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LOWER SPINE Y-AXIS ACCELERATION



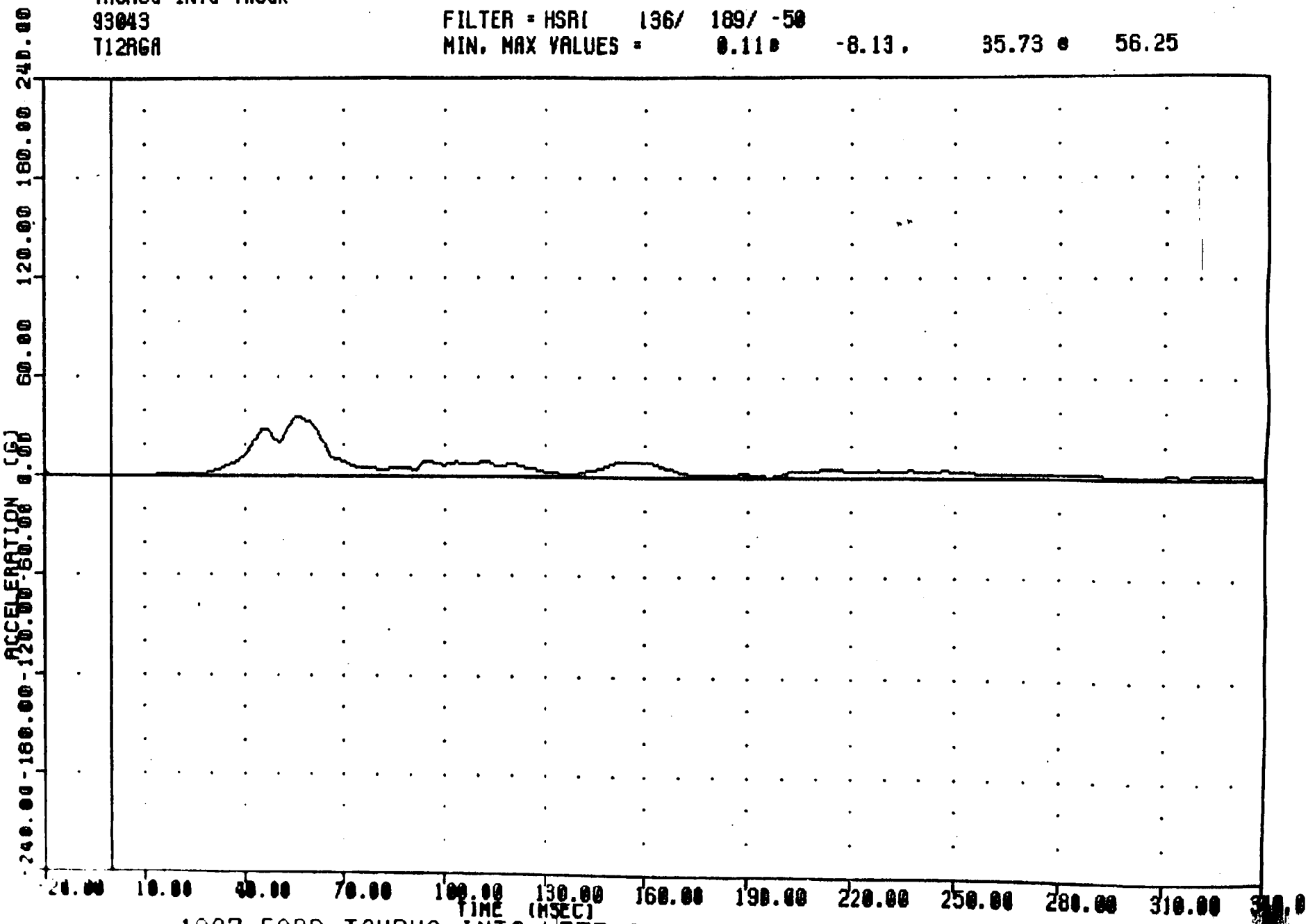
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION



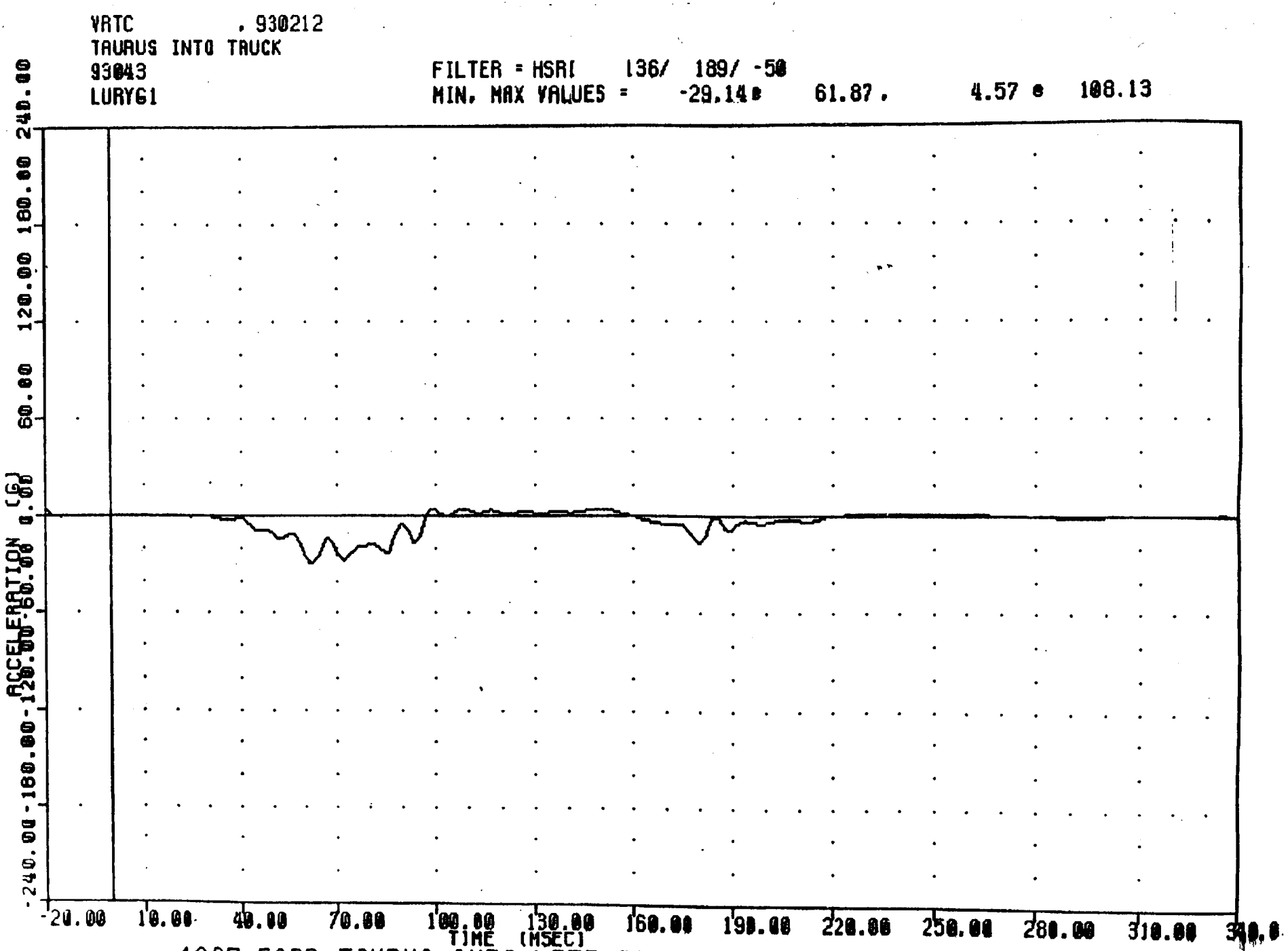
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LOWER SPINE Z-AXIS ACCELERATION



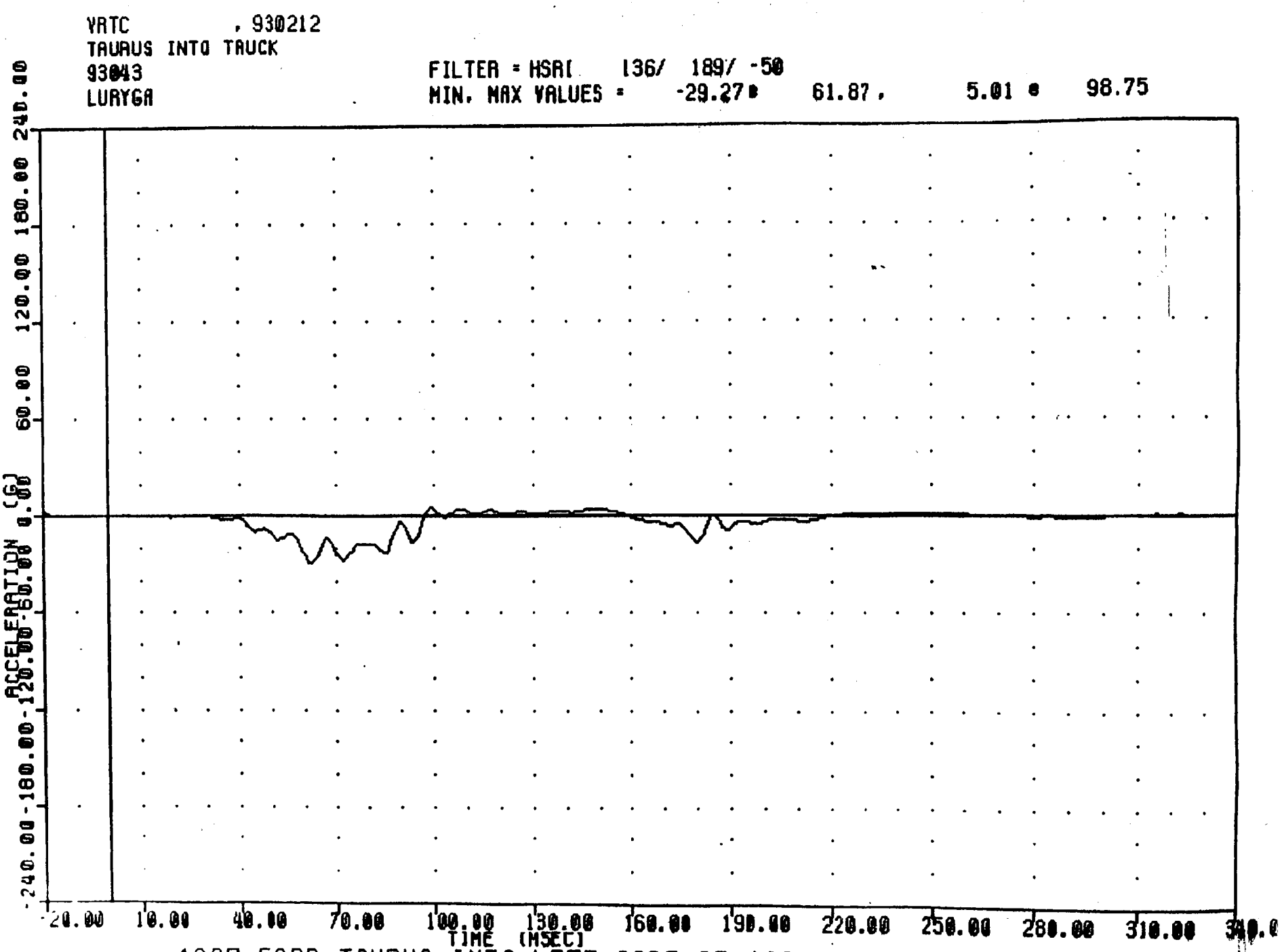
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LOWER SPINE RESULTANT ACCELERATION



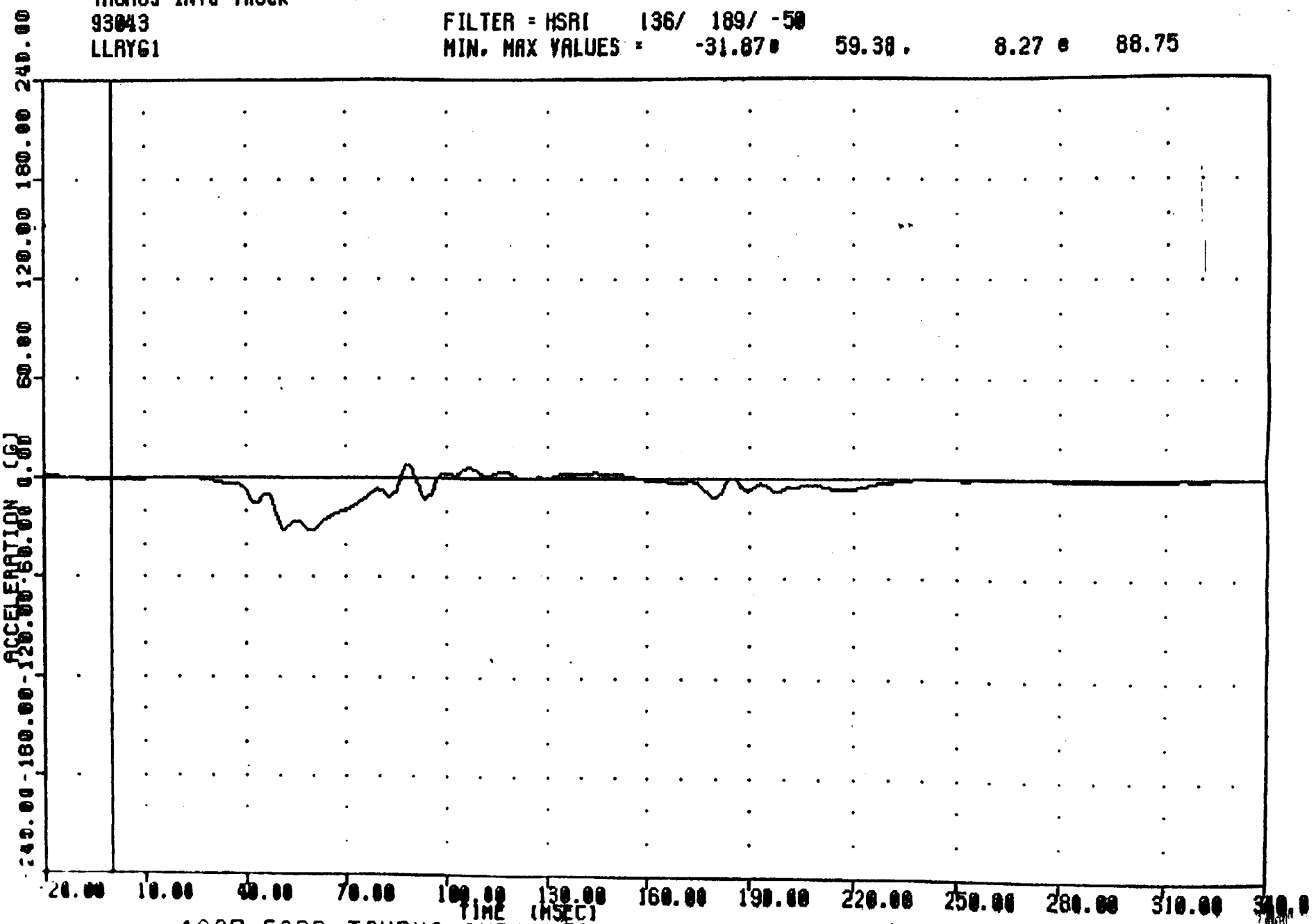
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LOWER SPINE RESULTANT REDUNDANT ACCELERATION



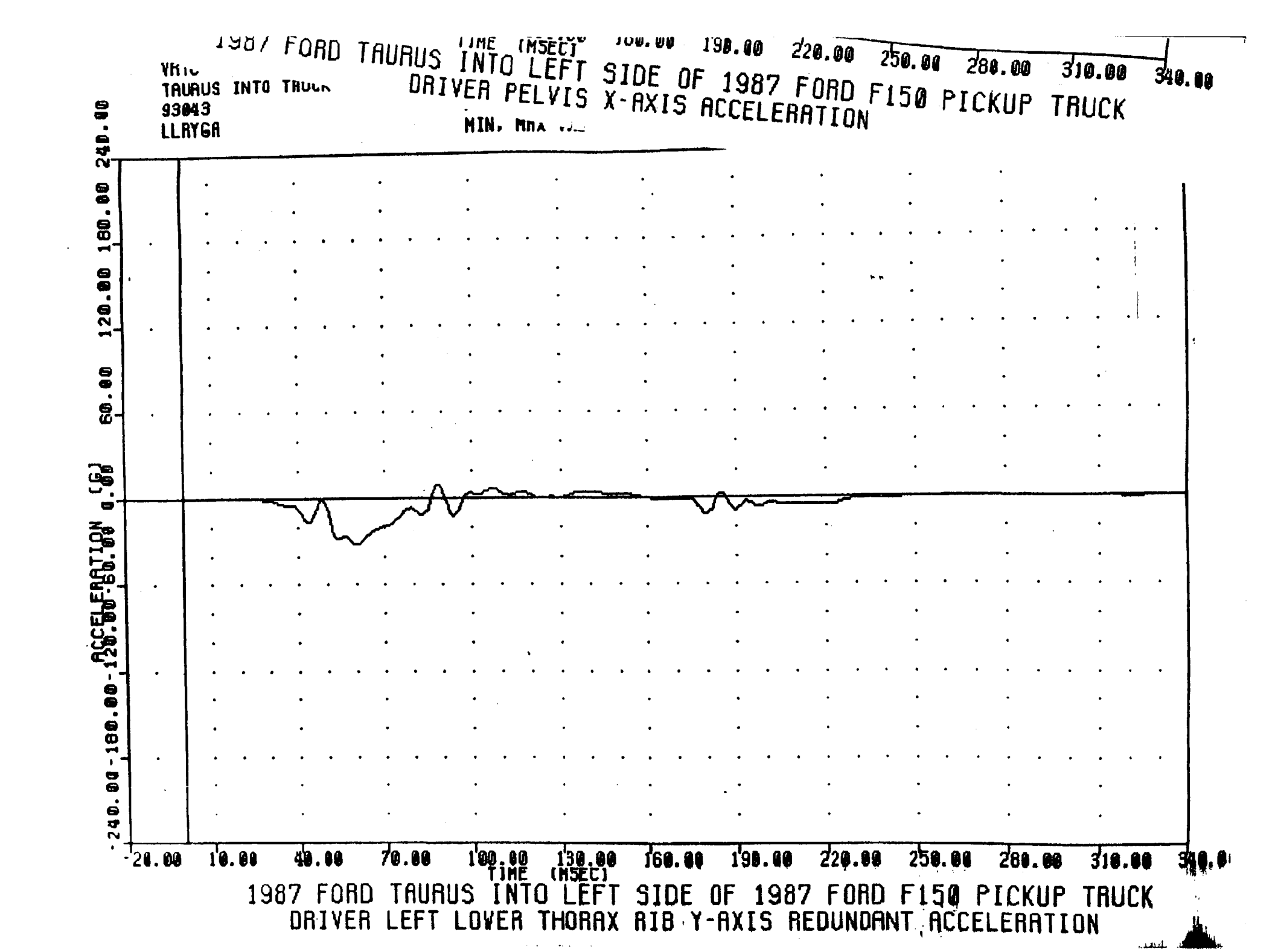
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LEFT UPPER THORAX RIB Y-AXIS ACCELERATION

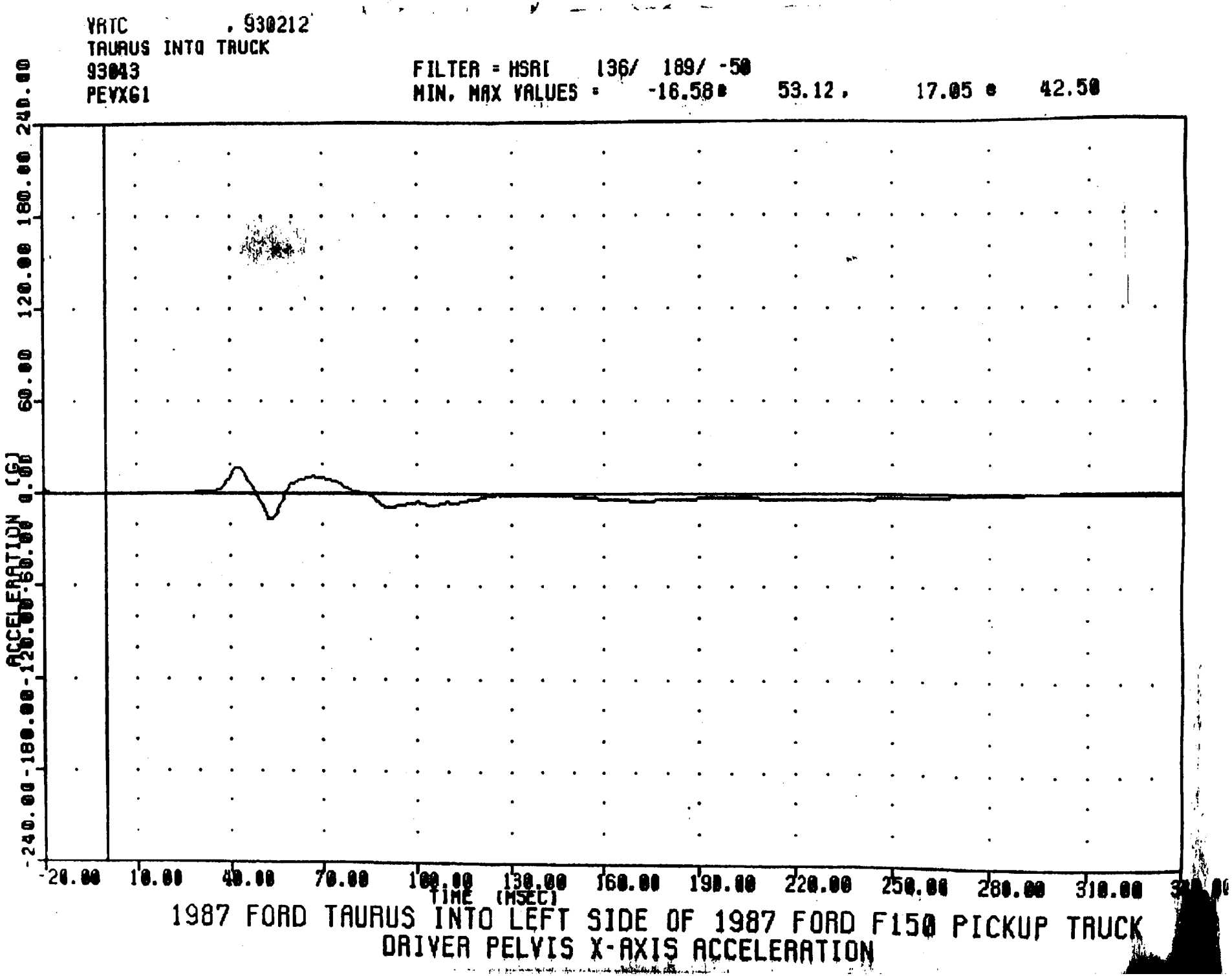


1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LEFT UPPER THORAX RIB Y-AXIS REDUNDANT ACCELERATION

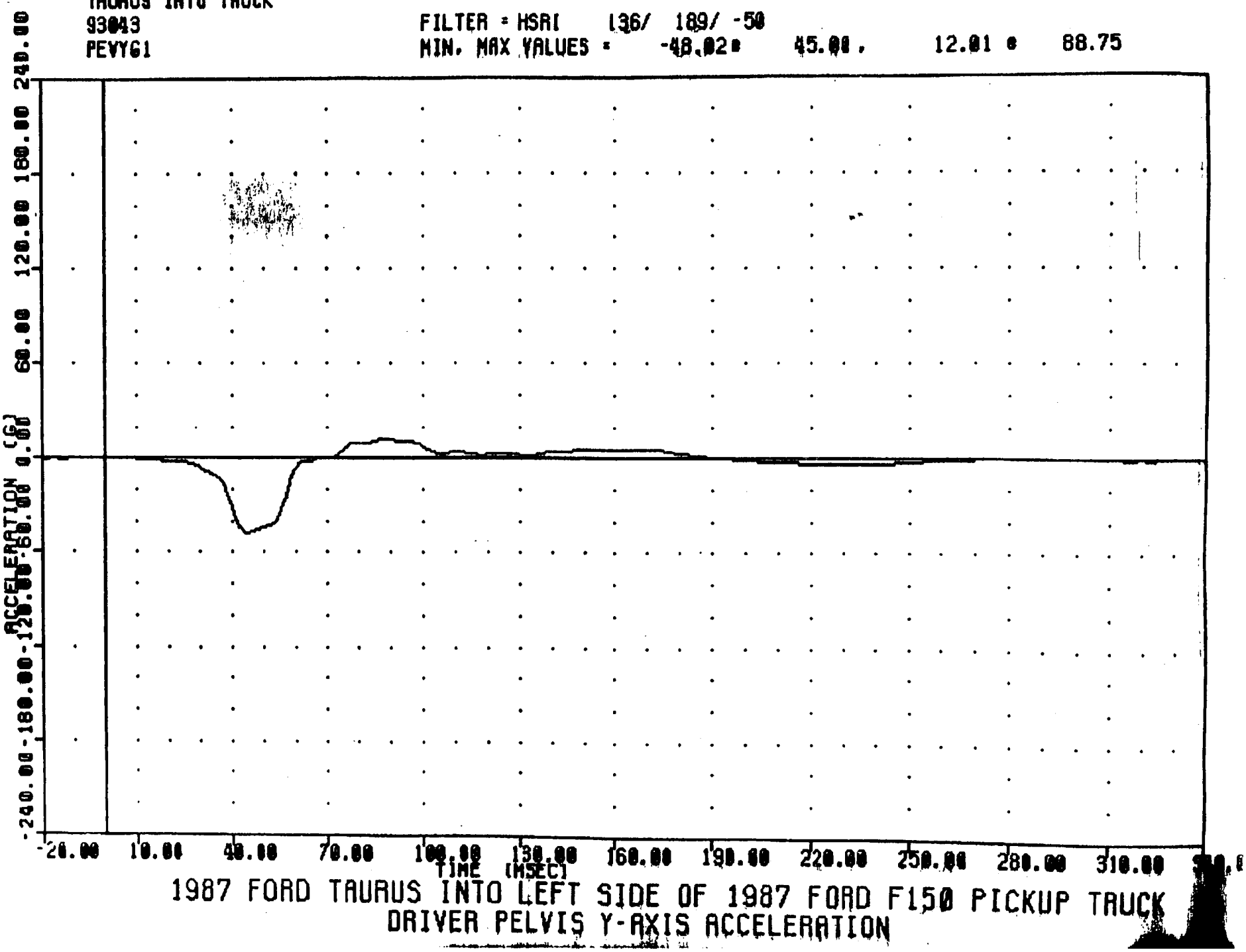


1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LEFT LOWER THORAX RIB Y-AXIS ACCELERATION

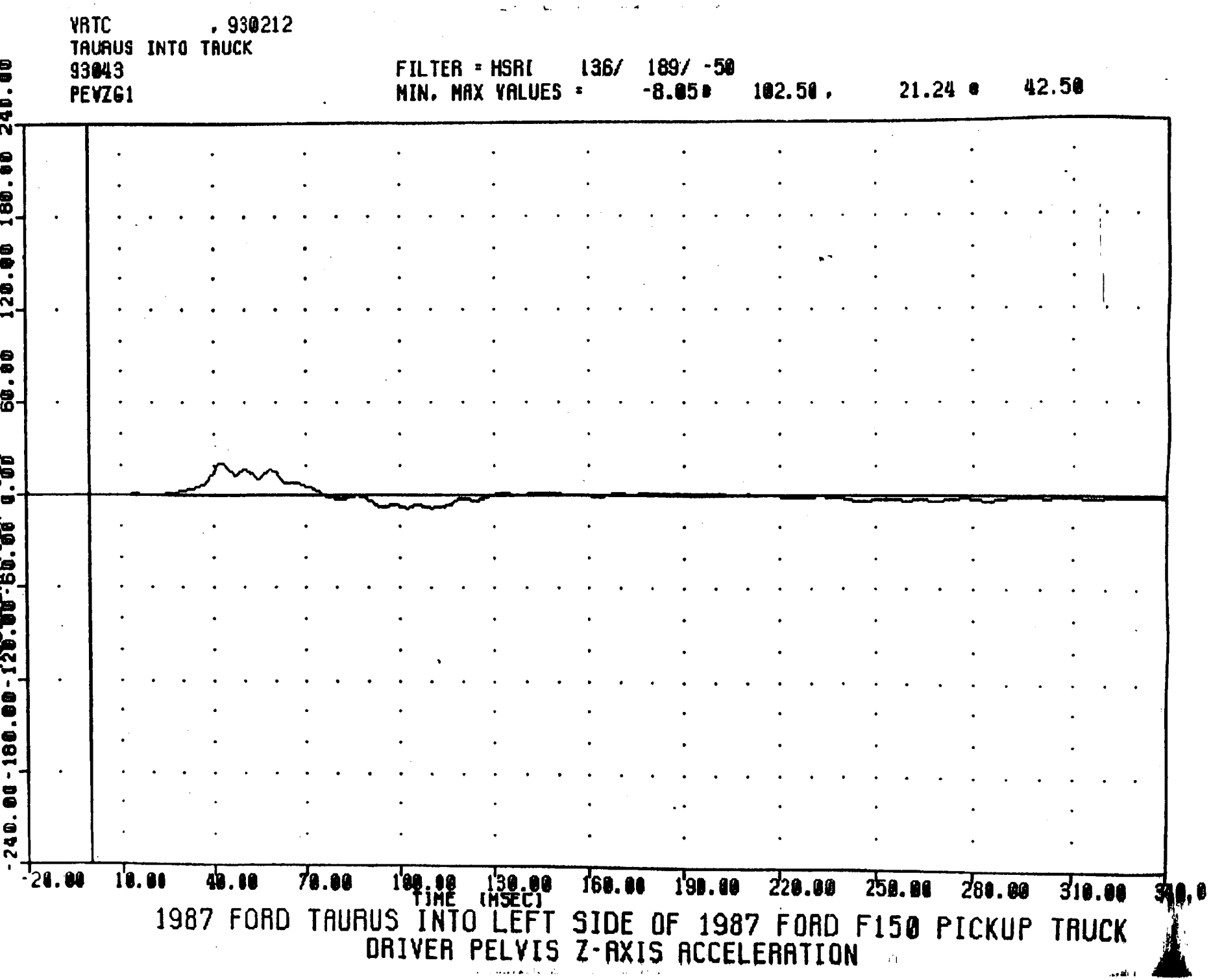

1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER PELVIS X-AXIS ACCELERATION
TAURUS INTO TRUCK
93043
LLRYGA
MIN, MAX
ACCELERATION (G)
240.00
180.00
120.00
60.00
0.00
-60.00
-120.00
-180.00
-240.00
-20.00
10.00
40.00
70.00
100.00
130.00
160.00
190.00
220.00
250.00
280.00
310.00
340.00
TIME (MSEC)
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER LEFT LOWER THORAX RIB Y-AXIS REDUNDANT ACCELERATION



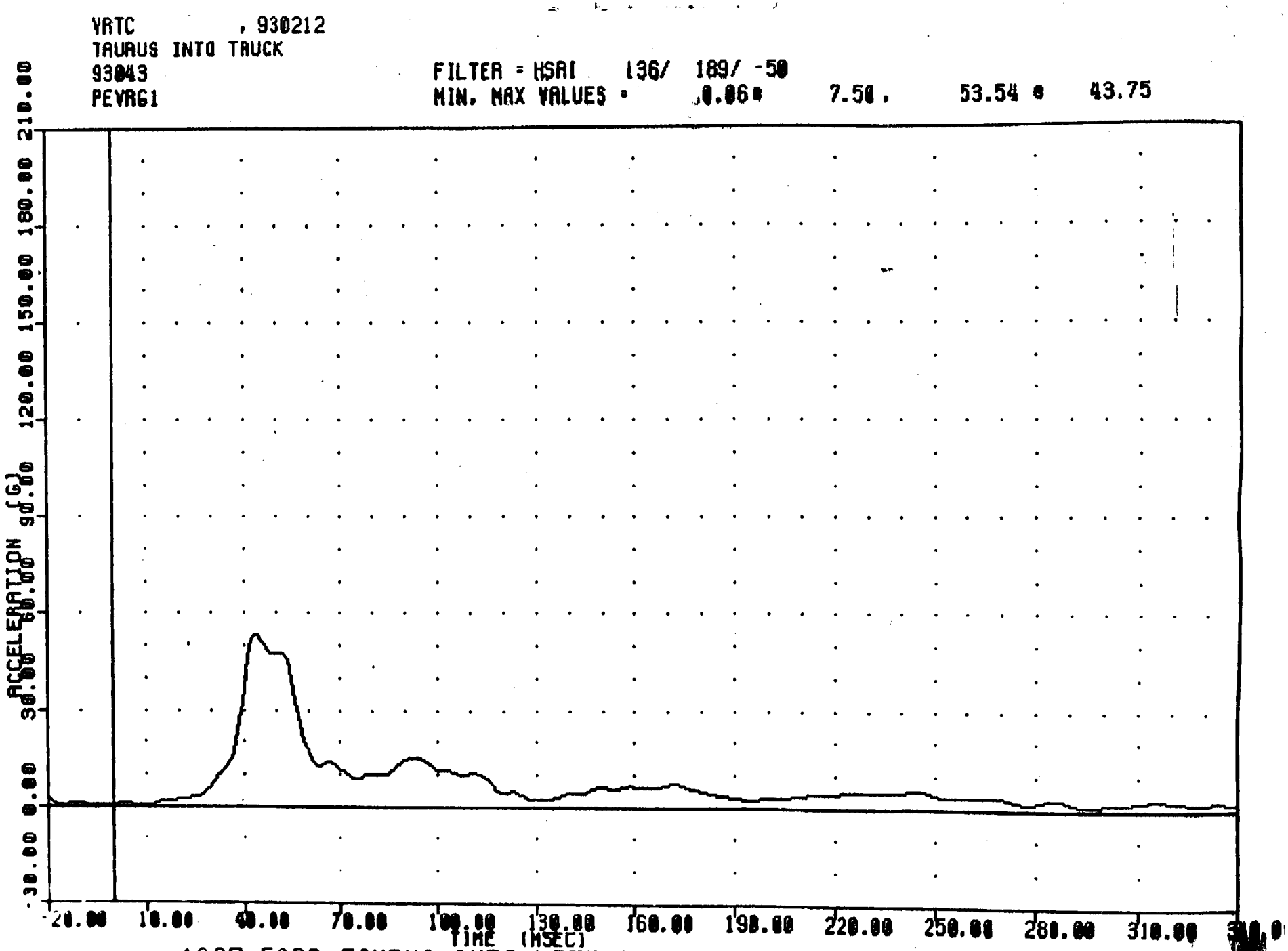
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER PELVIS X-AXIS ACCELERATION



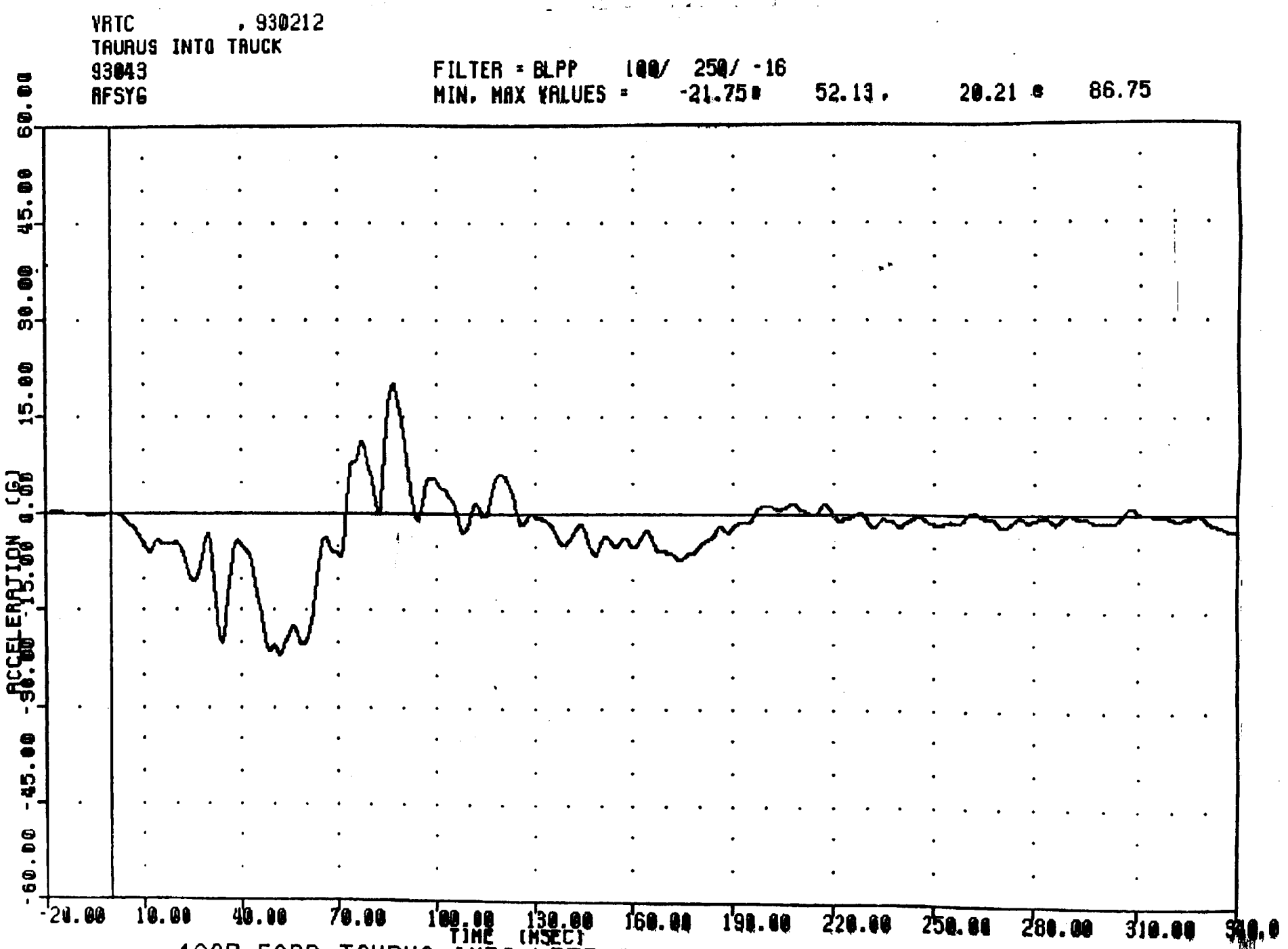
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER PELVIS Y-AXIS ACCELERATION



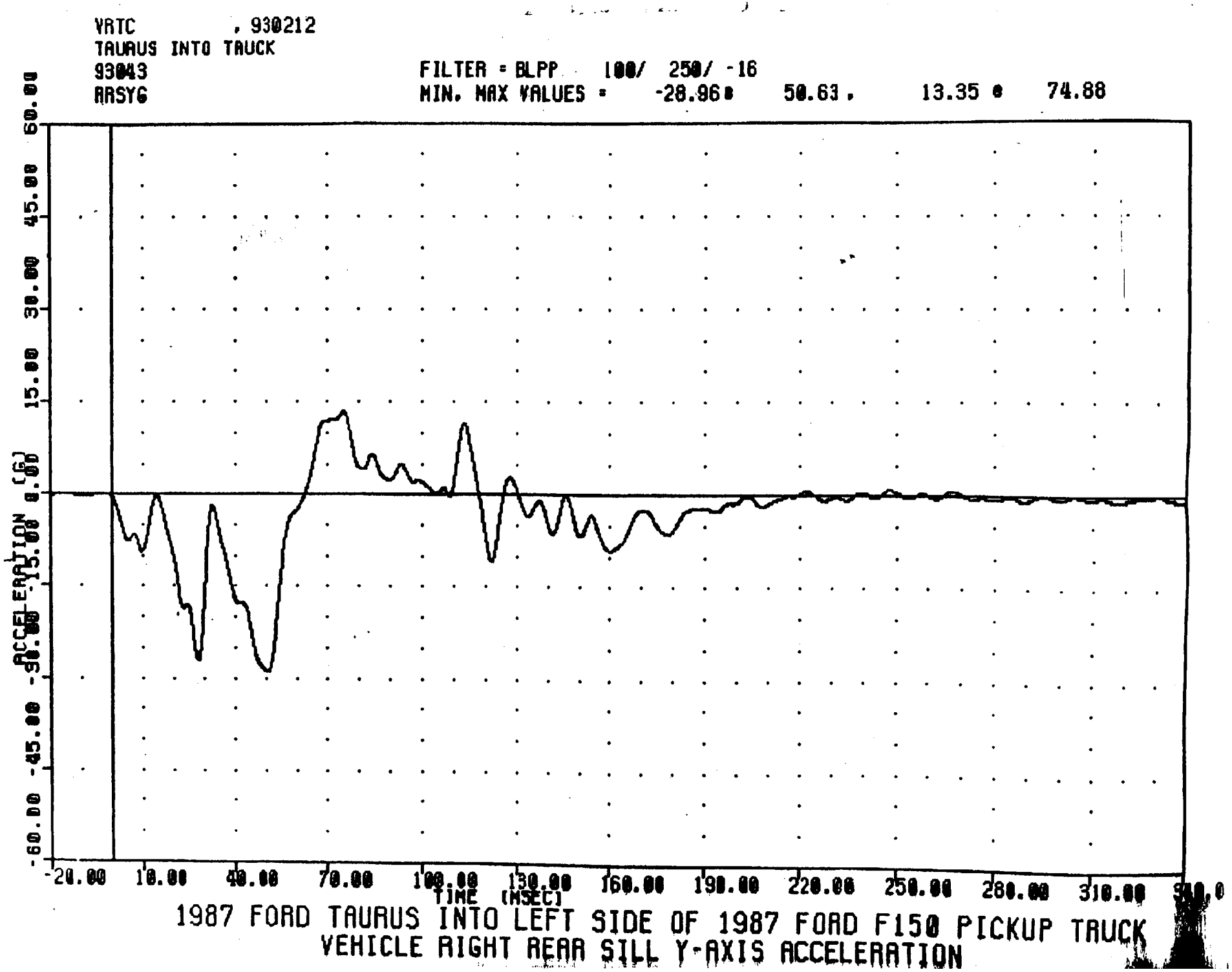
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER PELVIS Z-AXIS ACCELERATION



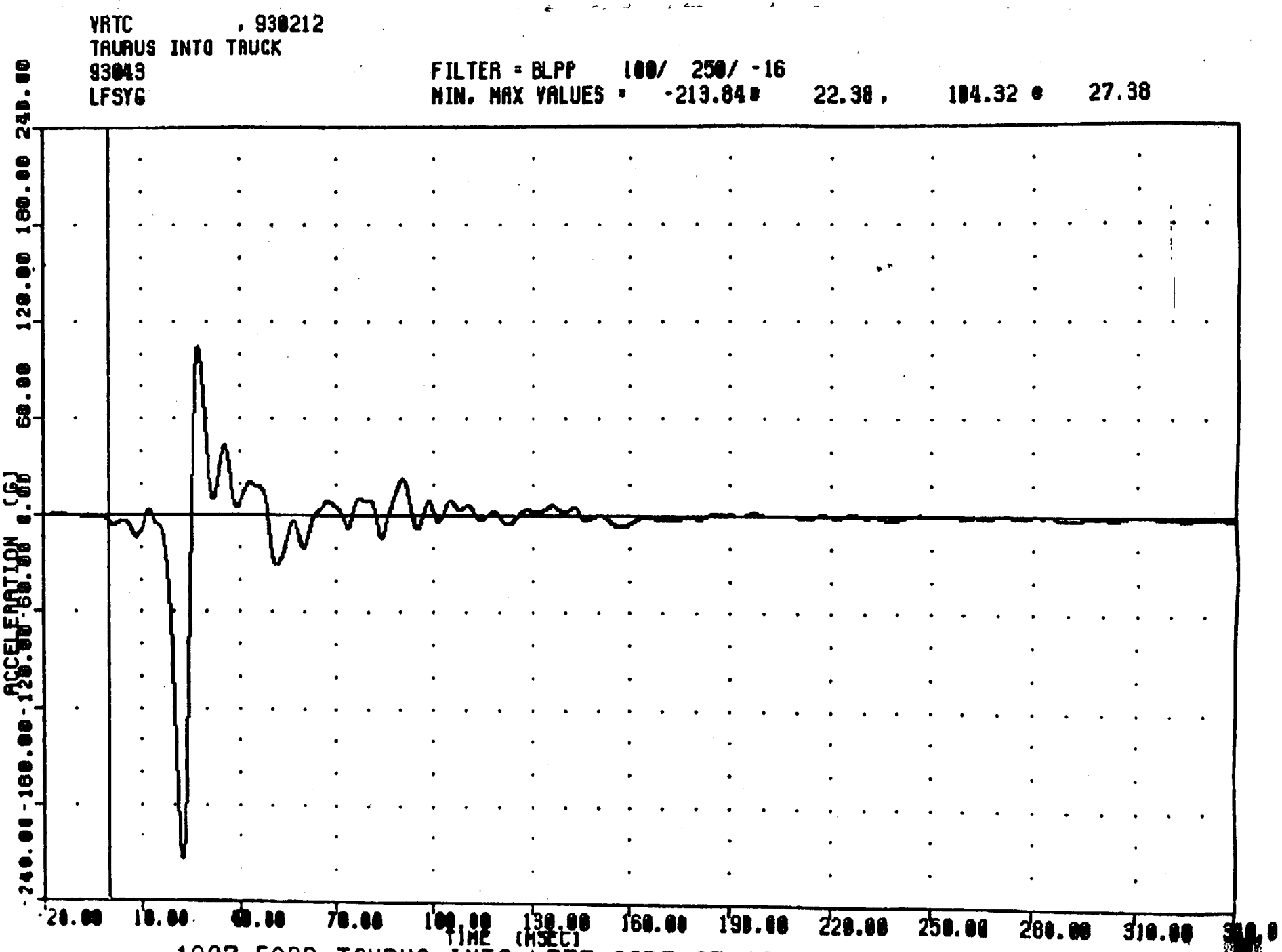
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
DRIVER PELVIS RESULTANT ACCELERATION



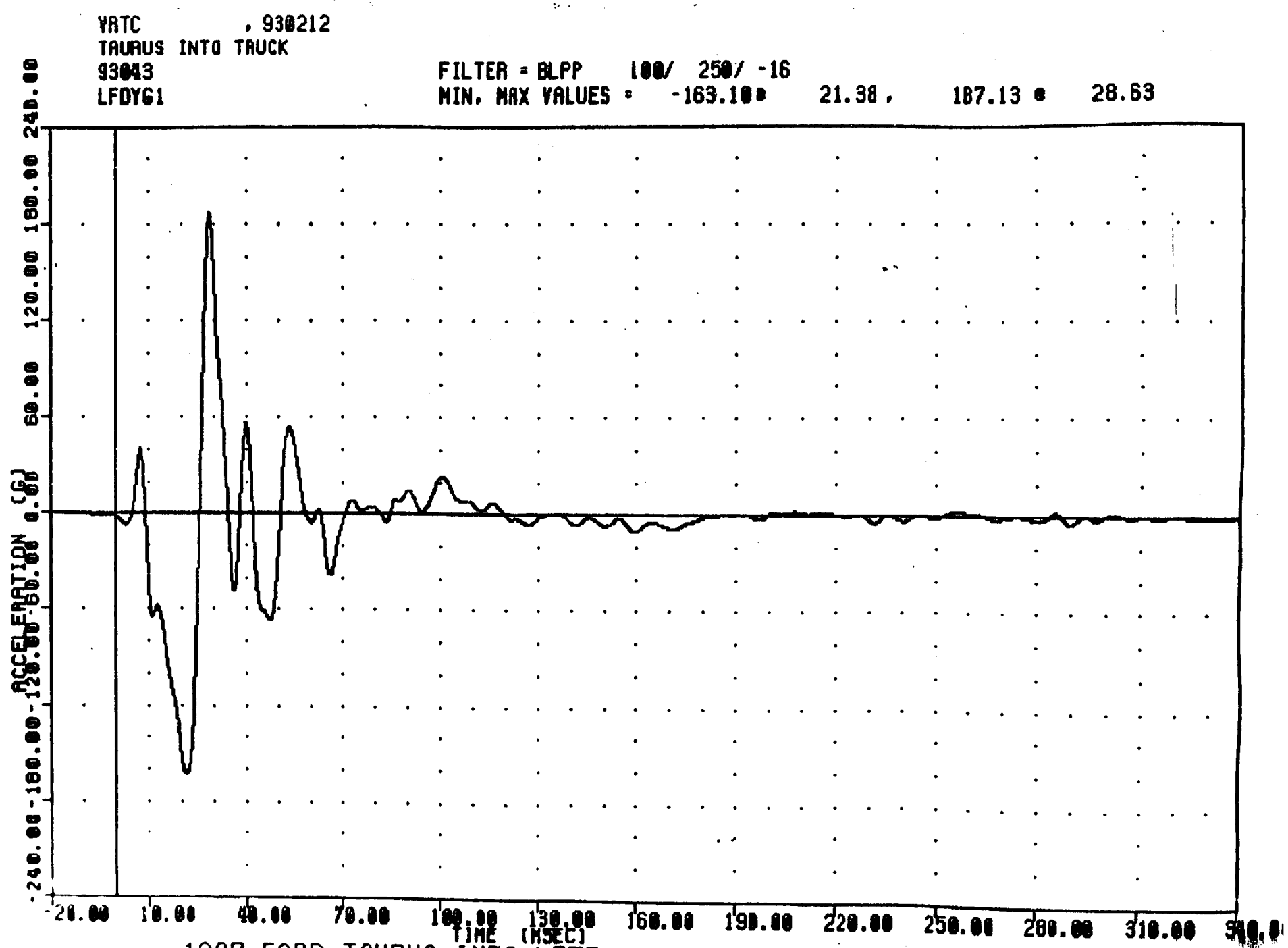
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
VEHICLE RIGHT FRONT SILL Y-AXIS ACCELERATION



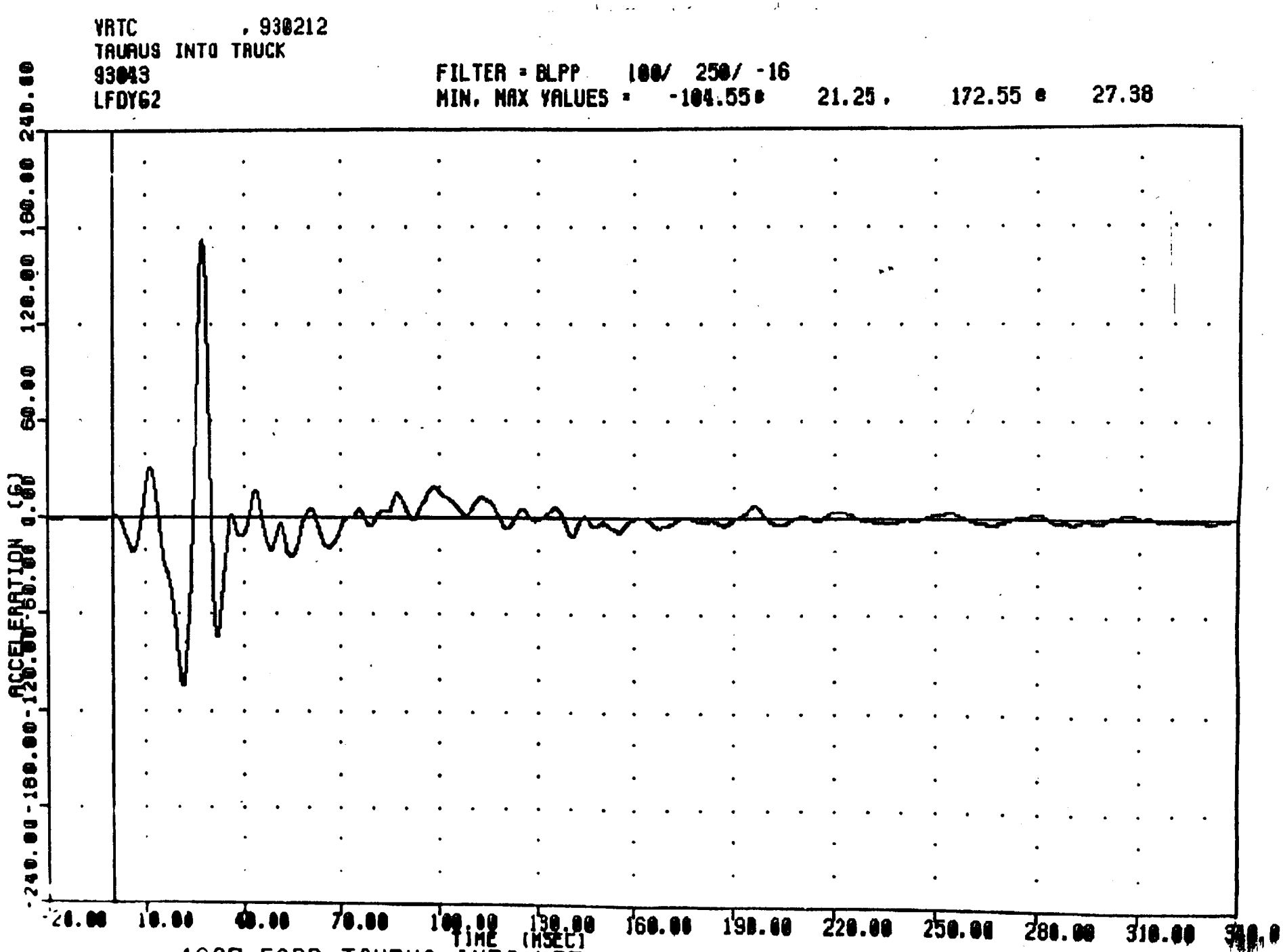
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
VEHICLE RIGHT REAR SILL Y-AXIS ACCELERATION



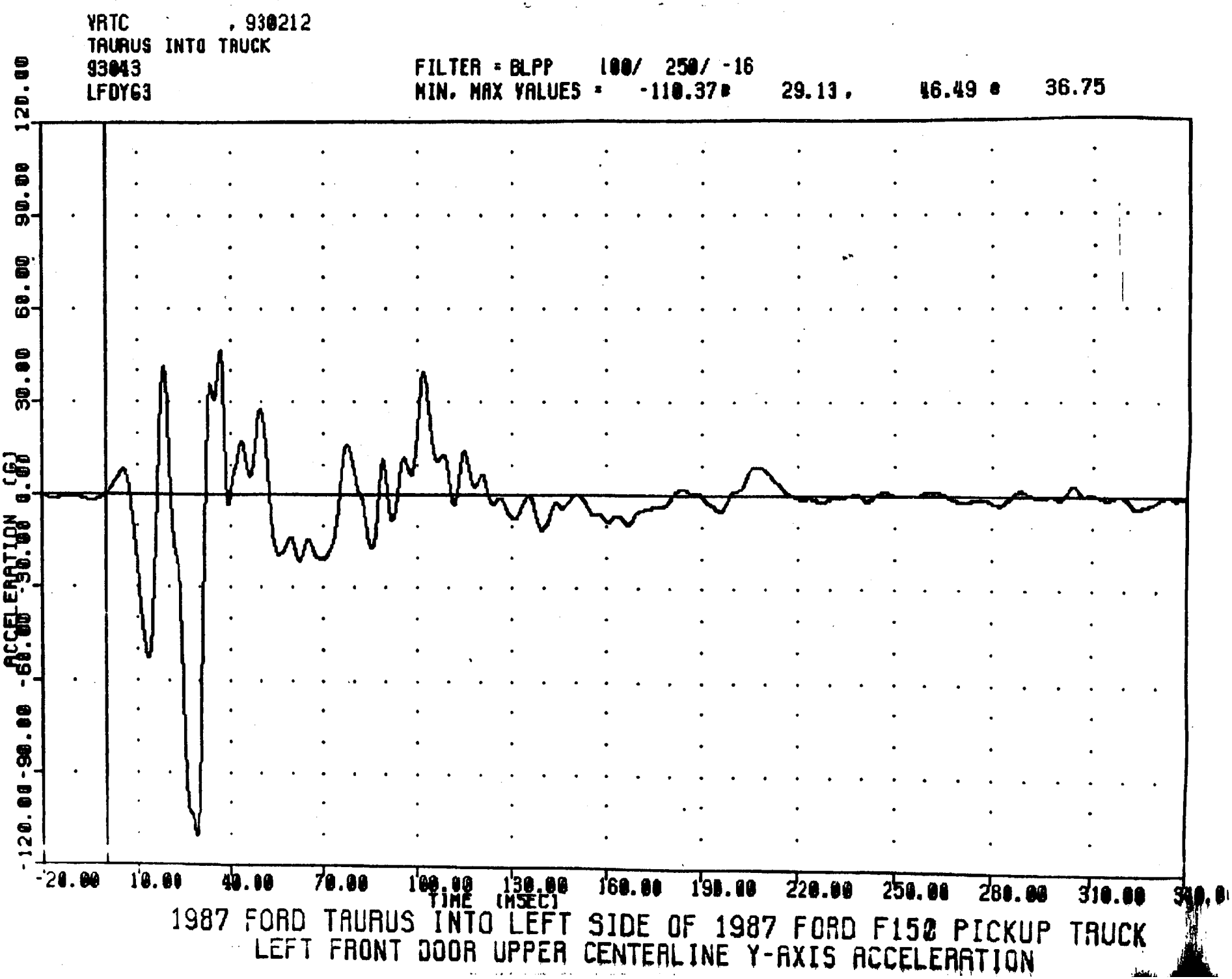
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
LEFT FRONT SILL Y-AXIS ACCELERATION



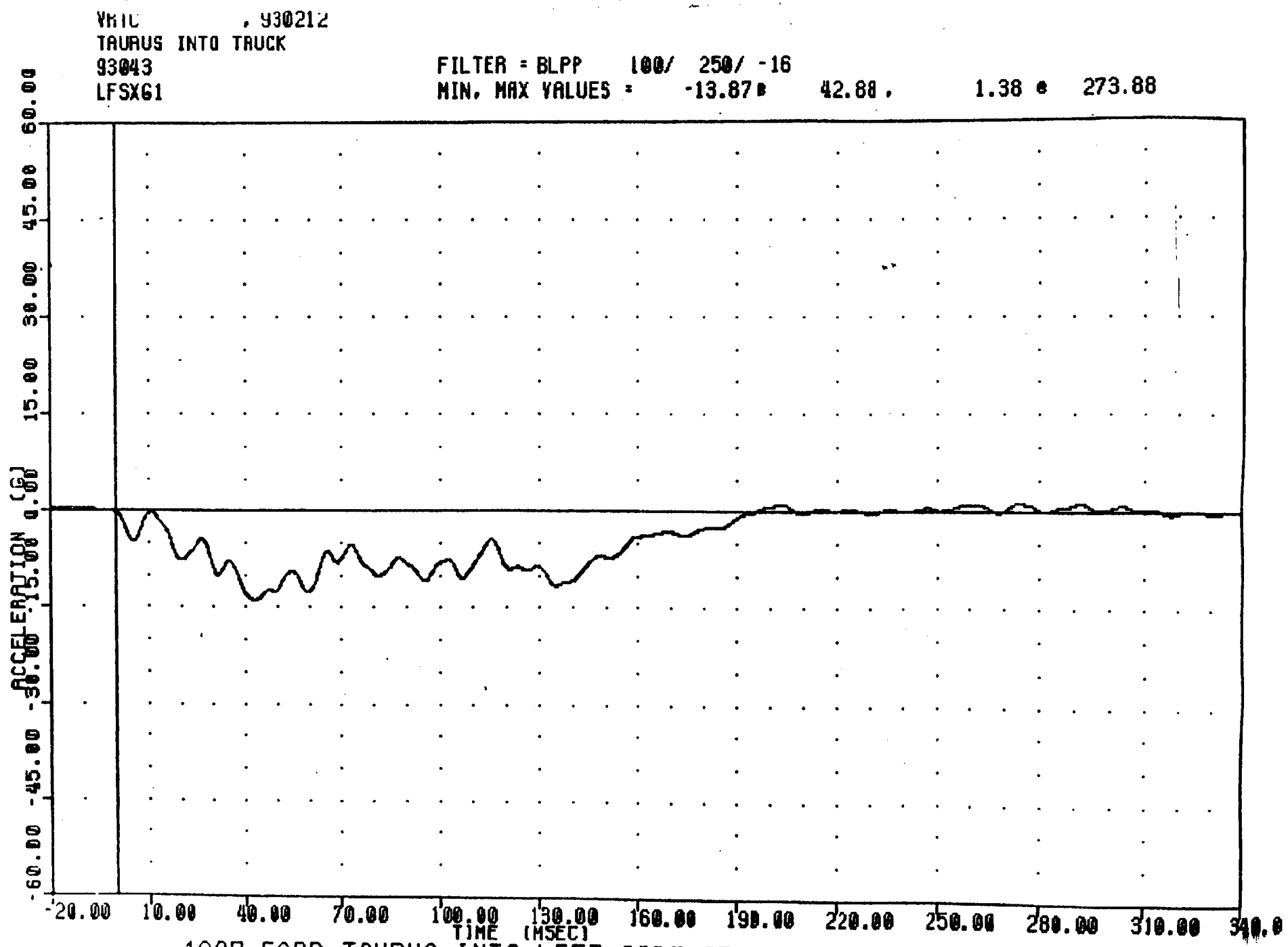
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
LEFT FRONT DOOR CENTERLINE Y-AXIS ACCELERATION



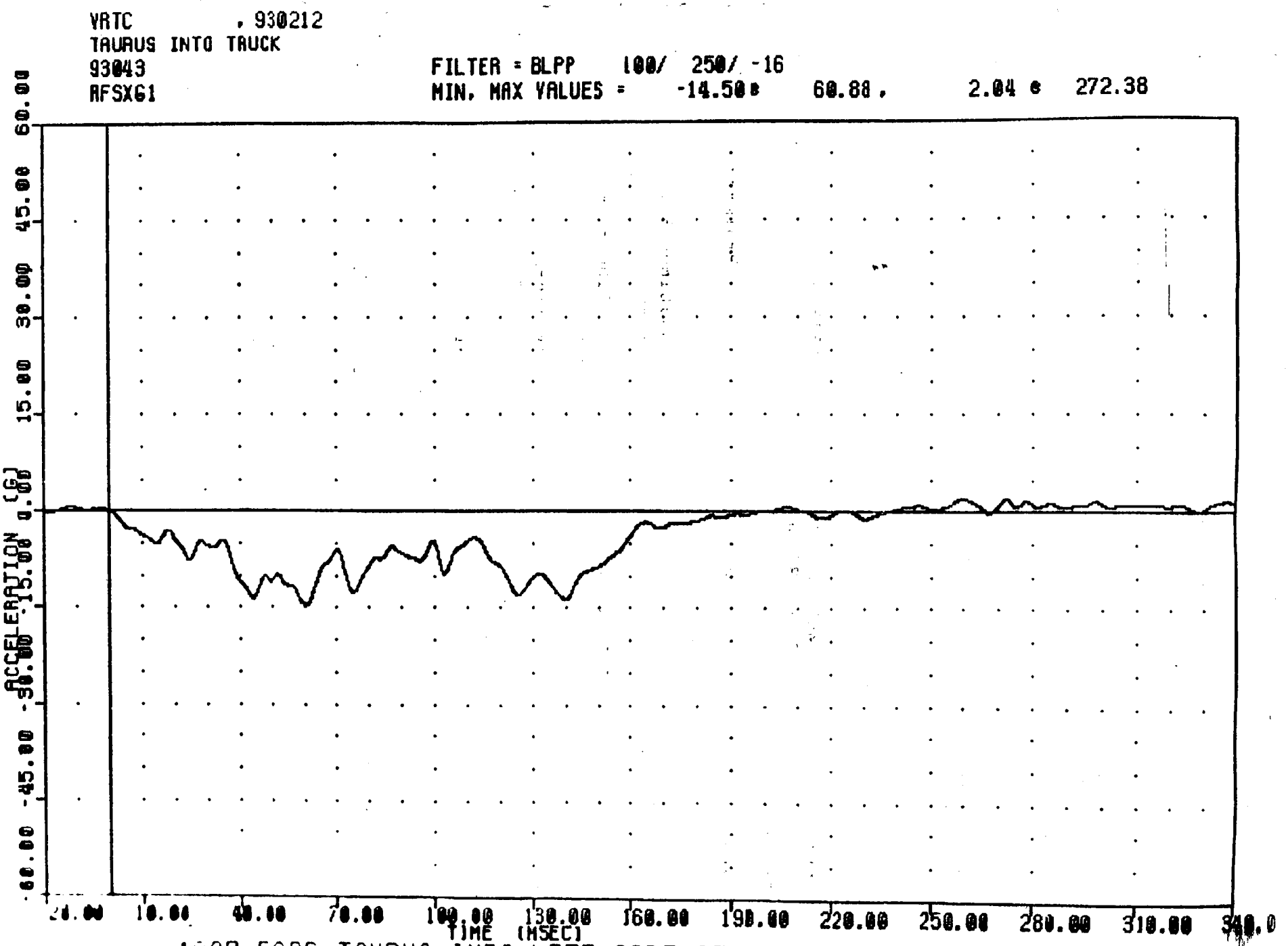
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
LEFT FRONT DOOR MID-REAR Y-AXIS ACCELERATION



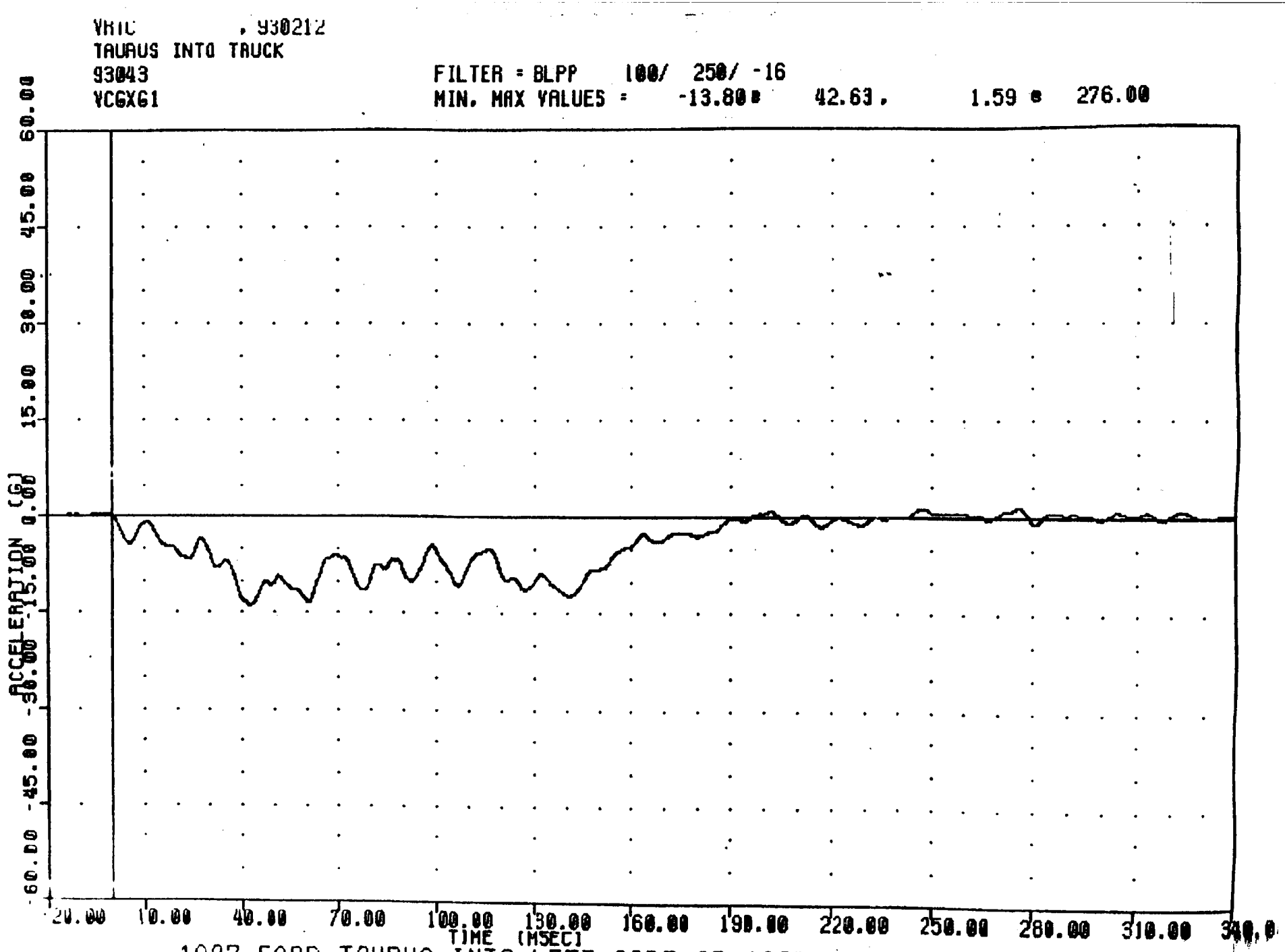
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
LEFT FRONT DOOR UPPER CENTERLINE Y-AXIS ACCELERATION



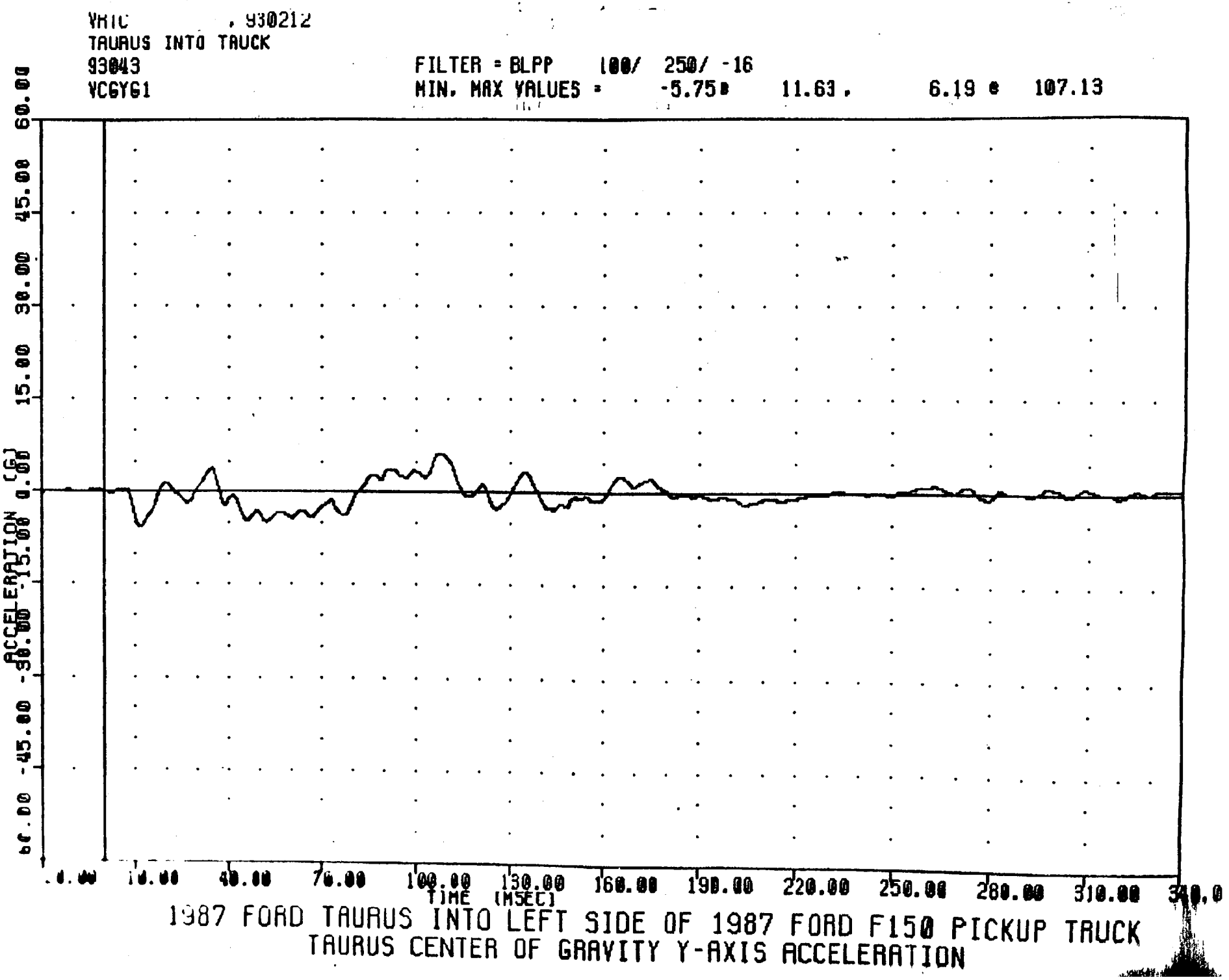
1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
TAURUS LEFT FRONT SILL X-AXIS ACCELERATION



1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
TAURUS RIGHT FRONT SILL X-AXIS ACCELERATION



1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
TAURUS CENTER OF GRAVITY X-AXIS ACCELERATION



1987 FORD TAURUS INTO LEFT SIDE OF 1987 FORD F150 PICKUP TRUCK
TAURUS CENTER OF GRAVITY Y-AXIS ACCELERATION

APPENDIX C

DUMMY CALIBRATION

PRE-TEST CALIBRATION

DRIVER DUMMY S/N 903

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY 11-Jan-93

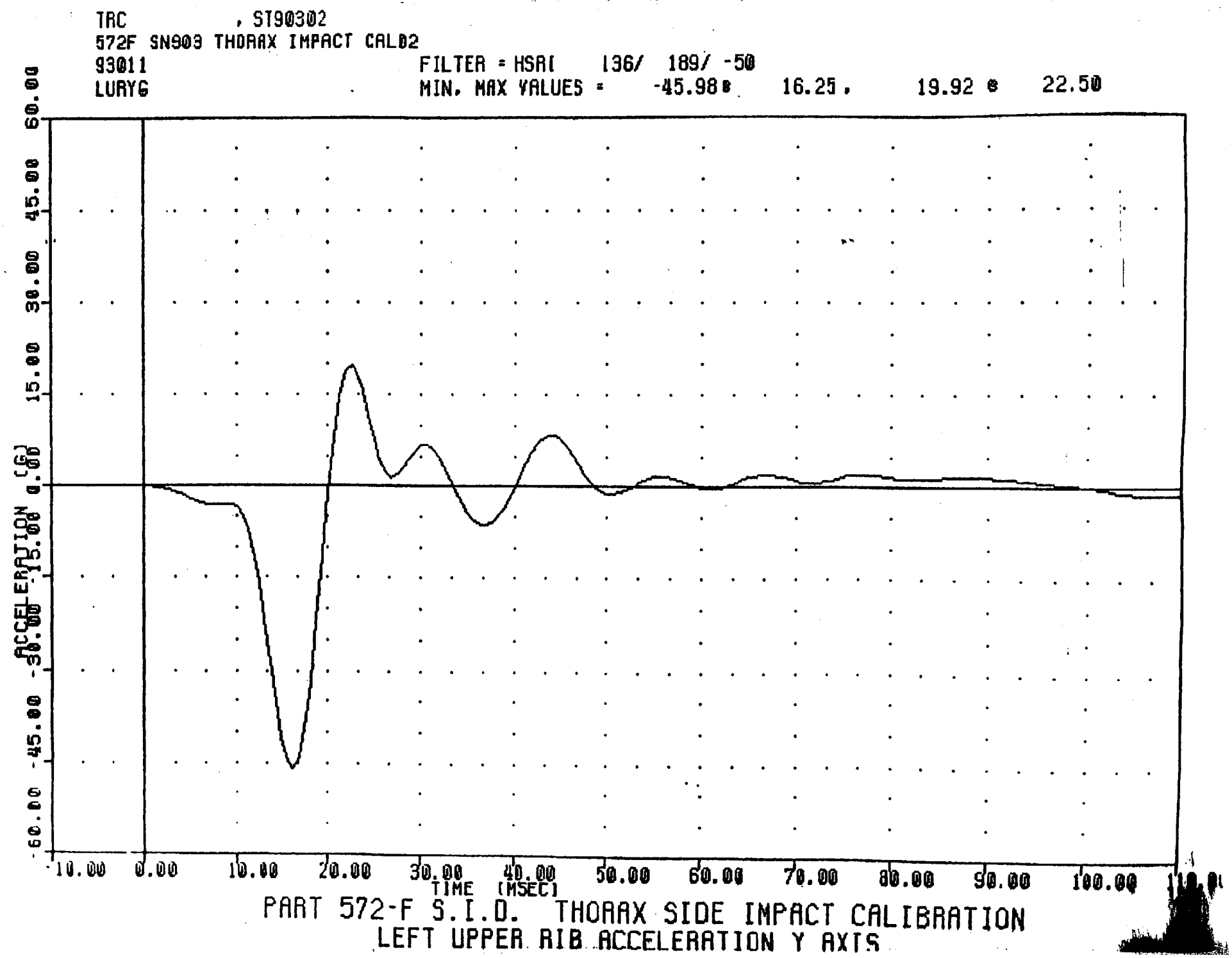
LEFT SIDE CONFIGURATION

TRC ST90302 572F SN903 THORAX IMPACT CAL02

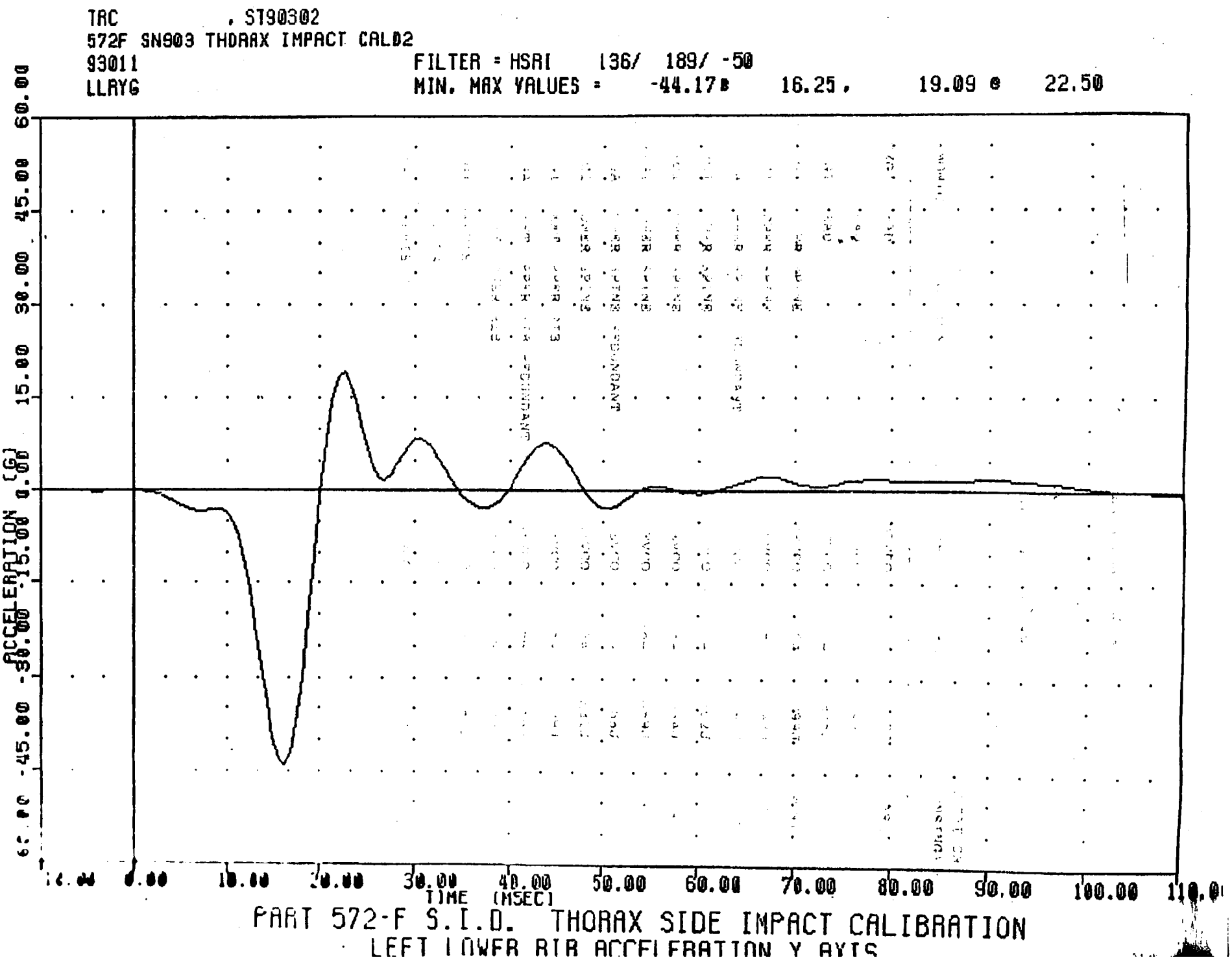
TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	66 - 78 F	70.0 DEG. F
RELATIVE HUMIDITY	10 - 70 %	37.0 %
PISTON VELOCITY	13.80 - 14.20 FT/S	14.03 FT/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	-46.0 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	-44.2 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	-18.0 G

DUMMY MEETS SPECIFICATIONS

TECHNICIAN Chas. Middlet

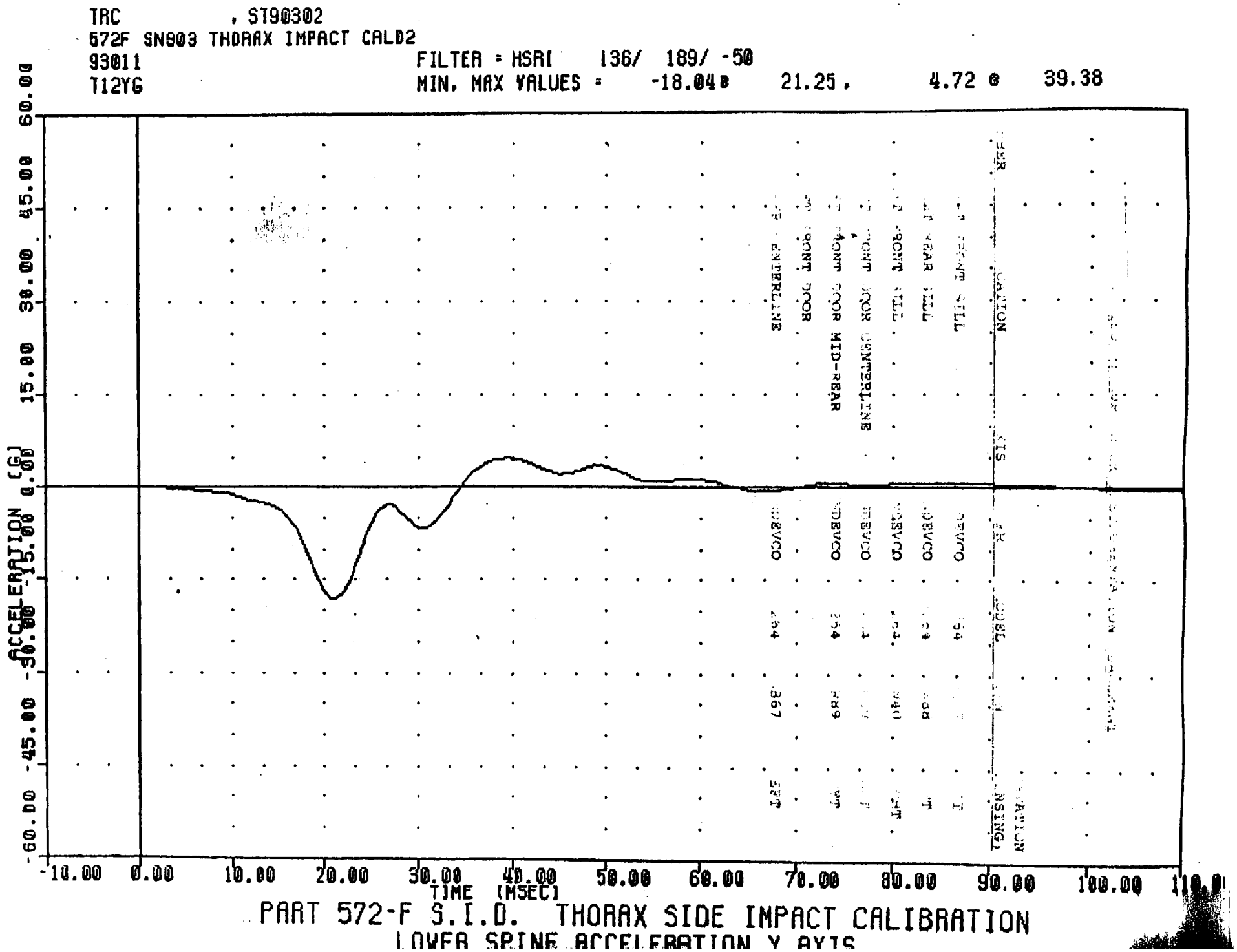


PART 572-F S.I.D. THORAX SIDE IMPACT CALIBRATION
LEFT UPPER RIB ACCELERATION Y AXIS



PART 572-F S.I.D. THORAX SIDE IMPACT CALIBRATION

LEFT LOWER RIB ACCELERATION Y AXIS



PART 572-F S.I.D. THORAX SIDE IMPACT CALIBRATION
LOWER SPINE ACCELERATION Y AXIS

TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY 11-Jan-93

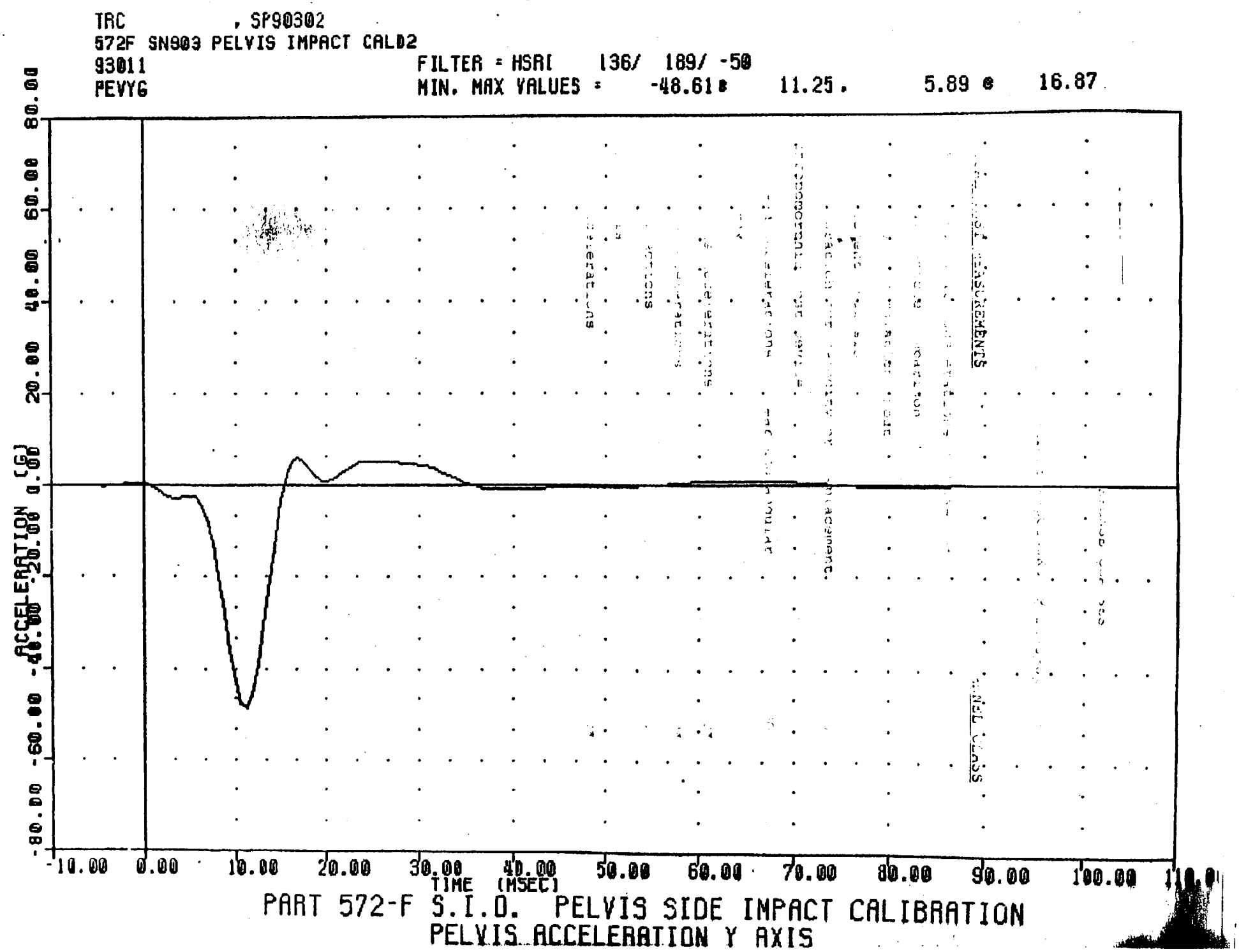
LEFT SIDE CONFIGURATION

TRC SP90302 572F SN903 PELVIS IMPACT CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	66 - 78 F	70.0 DEG. F
RELATIVE HUMIDITY	10 - 70 %	37.0 %
PISTON VELOCITY	13.80 - 14.20 FT/S	14.15 FT/S
PEAK PELVIC ACCELERATION	40 - 60 G	-48.6 G
TIME ABOVE 20 G LEVEL	3 - 7 MSEC	5.6 MSEC
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY MEETS SPECIFICATIONS

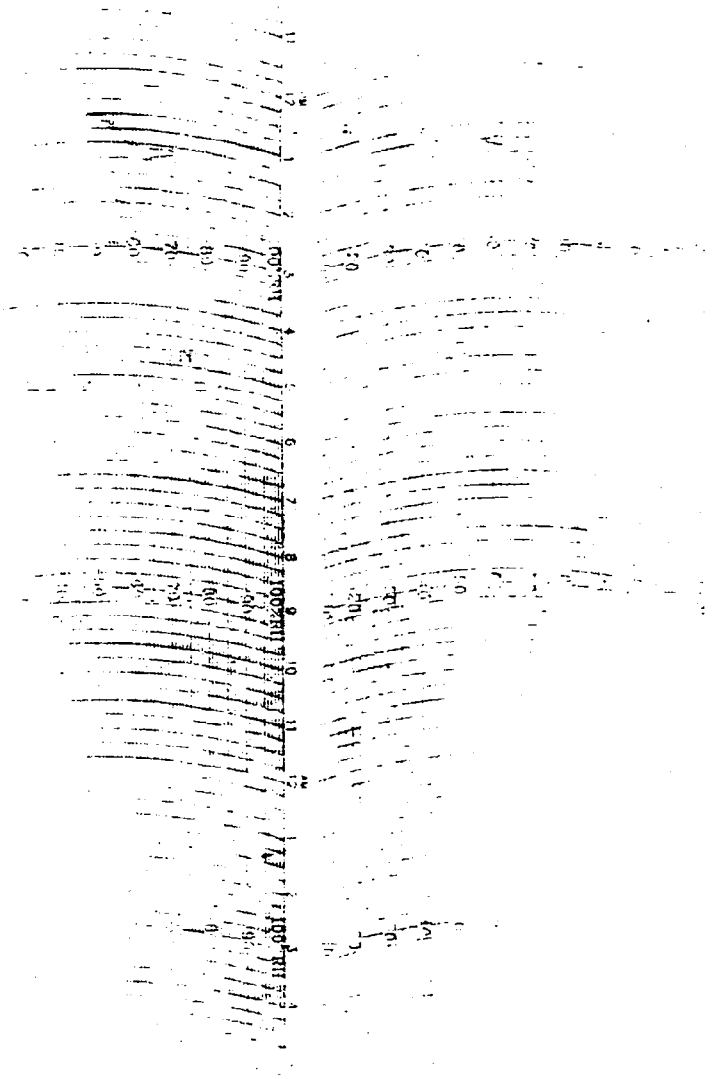
TECHNICIAN Chas Middlet



PART 572-F S.I.O. PELVIS SIDE IMPACT CALIBRATION
PELVIS ACCELERATION Y AXIS

APPENDIX D

MISCELLANEOUS TEST INFORMATION



DUMMY INSTRUMENTATION PLACEMENT

DUMMY MANUFACTURER & S/N: NHTSA 903

SEATING POSITION: DRIVER

MNEMONIC	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
HEDXG1	HEAD	X	ENDEVCO	7264	DC72J	REAR
HEDYG1	HEAD	Y	ENDEVCO	7264	BF42J	LEFT
HEDZG1	HEAD	Z	ENDEVCO	7264	EH75J	UP
T01XG1	UPPER SPINE	X	ENDEVCO	7264	DE99J	FRONT
T01YG1	UPPER SPINE	Y	ENDEVCO	7264	FG43J	LEFT
T01YGA	UPPER SPINE REDUNDANT	Y	ENDEVCO	7264	EJ62J	RIGHT
T01ZG1	UPPER SPINE	Z	ENDEVCO	7264	BE02J	UP
T12XG1	LOWER SPINE	X	ENDEVCO	7264	DM34J	REAR
T12YG1	LOWER SPINE	Y	ENDEVCO	7264	EJ59J	LEFT
T12YGA	LOWER SPINE REDUNDANT	Y	ENDEVCO	7264	BF65J	RIGHT
T12ZG1	LOWER SPINE	Z	ENDEVCO	7264	BH31J	UP
LURYG1	LEFT UPPER RIB	Y	ENDEVCO	7264	EY99J	RIGHT
LURYGA	LEFT UPPER RIB REDUNDANT	Y	ENDEVCO	7264	DC54J	RIGHT
LLRYG1	LEFT LOWER RIB	Y	ENDEVCO	7264	FJ66J	RIGHT
PEVXG1	PELVIS	X	ENDEVCO	7264	FB67J	REAR
PEVYG1	PELVIS	Y	ENDEVCO	7264	DF92J	LEFT
PEVZG1	PELVIS	Z	ENDEVCO	7264	BE50J	UP

FORD F150 PICKUP TRUCK INSTRUMENTATION PLACEMENT

NUMBER	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
1	RIGHT FRONT SILL	Y	ENDEVCO	2264	AY72	LEFT
2	RIGHT REAR SILL	Y	ENDEVCO	2264	AZ88	LEFT
3	LEFT FRONT SILL	Y	ENDEVCO	2264	AN40	RIGHT
4	LEFT FRONT DOOR CENTERLINE	Y	ENDEVCO	2264	AU09	LEFT
5	LEFT FRONT DOOR MID-REAR	Y	ENDEVCO	2264	AR89	LEFT
6	LEFT FRONT DOOR UPPER CENTERLINE	Y	ENDEVCO	2264	BB67	LEFT

FORD TAURUS INSTRUMENTATION PLACEMENT

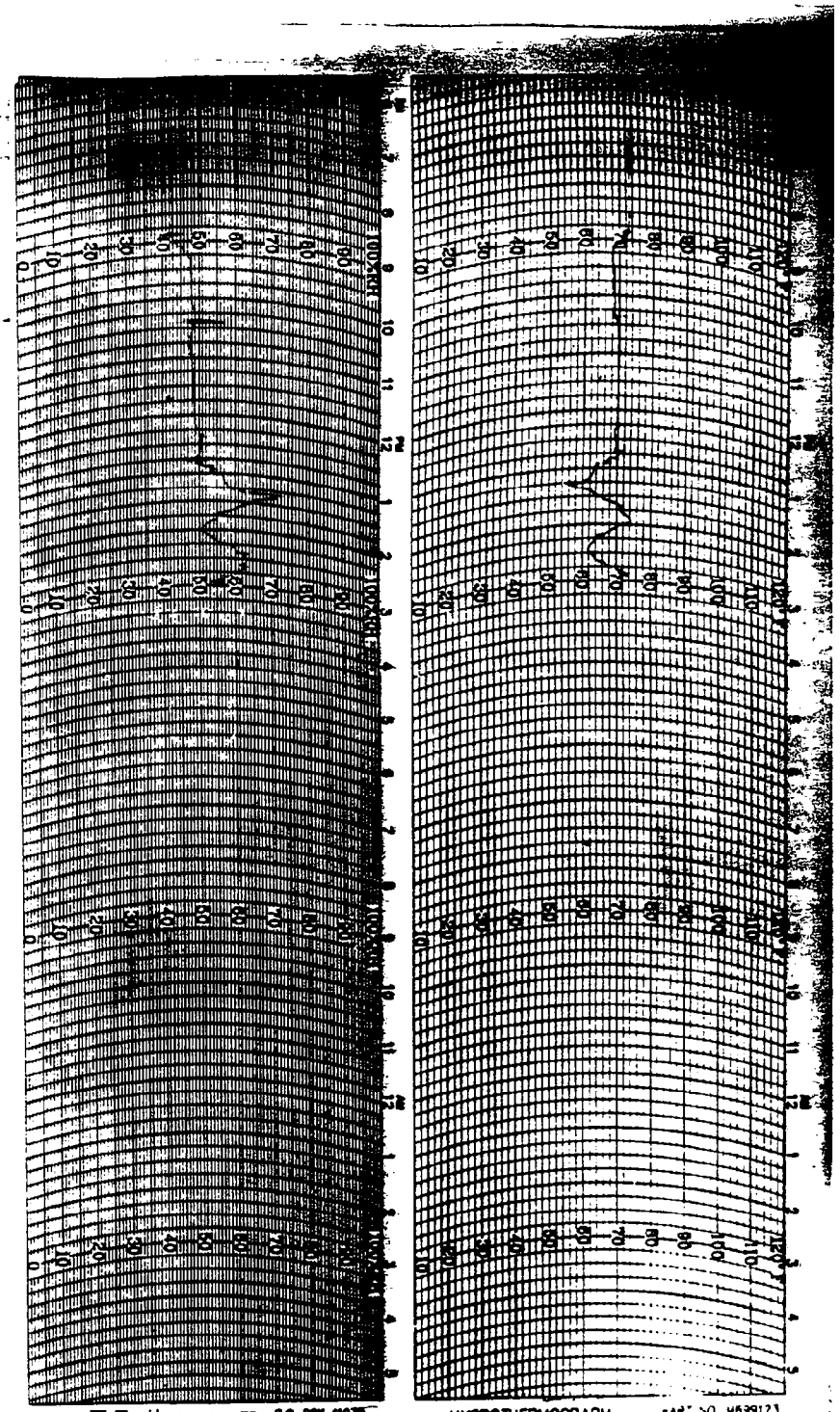
NUMBER	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+ SENSING)
1	LEFT FRONT SILL	X	ENDEVCO	2264	AN06	REAR
2	RIGHT FRONT SILL	X	ENDEVCO	2264	AK21	REAR
3	CENTER OF GRAVITY	X	ENDEVCO	2264	AZ67	REAR
	CENTER OF GRAVITY	Y	ENDEVCO	2264	AR38	RIGHT

FREQUENCY RESPONSE CLASSES

NHTSA LABORATORY PROCEDURE TP-214D-01

TYPICAL TEST MEASUREMENTS	CHANNEL CLASS
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Thorax	
Spine accelerations	180*
Rib accelerations	180*
Deflections	180
Pelvis	
Accelerations	180*

*The Channel Class 180 data is further processed by subsampling to a 1000 Hz sample rate, removing bias, and filtering with the Finite Impulse Response (FIR100) filter program.



Weathermeasure
WEATHERtronics
Division of CALMETRICS, Inc.

P.O. BOX 41035
SACRAMENTO, CA 95841
PHONE (916) 923-0555

HYGROTHERMOGRAPH
1 DAY

930212

STATION _____ DATE ON _____ DATE OFF _____

OCCUPANT COMPARTMENT THERMOGRAPH